E-COMMERCE AND INTERNATIONAL TAXATION
AND THE CASE OF GREECE

MARIA SKONTA
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E-COMMERCE AND INTERNATIONAL TAXATION
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MARIA SKONTA

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ABSTRACT

This research examines the concept of e-commerce and the international taxation issues it raises. Here the development of e-commerce in Greece during the period 2001-2002, is presented based on a large survey carried out by the National Statistics Service of Greece.

Internet, a decentralized and global forum that often involves the transmission of intangible goods and services, defies traditional forms of regulation.

The research begins with a review on how several international organizations have developed regulations in order to tax e-commerce transactions either by traditional tax principles that govern "real space", or by the creation of rules tailored to the needs of the Internet era.

The agreements between the EU and the US are analysed and discussed, as well as regulations issued by each of them, aiming to facilitate e-business and to protect the public interest at the same time.

Attention is also paid on the EU Directive 2002/38/EC, as it exemplifies the first European effort to eliminate unfair practices of e-commerce between EU Member States and Third Countries.

The results of a research concerning the volume of sales via Internet between the US and the EU are also presented.

Finally, the results from two surveys concerning e-commerce in Greece for the period 2001-2002 are presented and some conclusions are drawn. Notably, although it would be accurate to say that Greece is doing quite well, it still needs a lot more to do in order to reach the EU average.
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CHAPTER 1: INTRODUCTION

The use of the Internet for global marketing enables firms to bypass the conventional stages of internationalization, as it removes all geographical constraints, permits the instant establishment of virtual branches throughout the world and allows direct and immediate foreign market entry to the smallest of businesses (Bennett R., 1997).

A computer user with a modem, or other computer-to-Internet connection, can purchase products and services from around the world on the Internet. The ease of Internet-based cross-border transactions makes it likely that these transactions will increase dramatically. However it also raises tax questions that many companies are still ill equipped to handle.

The tax implications for electronic commerce include consumption or value added tax (VAT), sales tax and income tax. Within the context of electronic commerce, the two main problems with respect to taxes are the control of the volume of sales (due to the diversity of countries where the customers or clients or products are located), and the localization of the operations necessary to identify the person making the income, and thus to establish the location of the transaction/consumption (Hernando I., September 2003).

Services and some products, such as software, can be delivered over the Internet to buyers around the world. Buyers can transfer funds electronically, and Internet providers are working to make these transactions completely secure. Rules governing Web-based services and electronic delivery of products are, however, virtually nonexistent.

Governments around the world are in the early stages of policy making and, while there is some consistency in policy proposals, there are also significant differences. The ease of cross-border transactions has confused tax experts trying to figure out which country should tax these transactions.

For example, a U.S. software company sells products over the Internet. The company can market and sell its products directly over the Internet, receive payments over the Internet and have the funds deposited in any bank in the world. The company can operate from anywhere in the world and the server, as well, can be located anywhere in the world.
What rules are there to determine which country should tax these transactions? The answer is not known since tax rules have not yet caught up to these types of transactions. The task will be to fit Internet transactions into existing rules, where possible, and to creatively adapt rules to fit transactions that did not exist when the rules were written.

This specific topic of e-commerce was chosen as the subject of this research for the following reasons:

Several factors make doing business through the Internet very appealing.

- First, the ability to establish public and private global communication systems that are secure, inexpensive and require a low start-up capital has attracted small, medium and large companies to engage in such business.
- Second, commerce through the Internet requires a small number of distribution, sales, broker and other professional intermediaries, reducing costs of selling products or providing services. In addition, today it is possible for a producer of software to sell and deliver its products directly to the final consumer without having a physical presence in the location where the consumer is located.
- Third, intranets enable integration of business functions even if the performers of the functions are not located in the same physical establishment.

Electronic commerce is based on ideas that offer new practices in the way people around the globe communicate, exchange ideas and do business. Electronic commerce can, therefore, be viewed as a kind of technology and business innovation since it introduces new methods in:

- communications
- business transactions
- market structure
- education
- work

In other words, e-commerce is particular to the extent that the actors involved face a set of new problems that in the exercise of traditional trade either did not exist or had been resolved. These new problems are, among others, information security, personal data and intellectual property protection. Additionally, the question of what constitutes a “good practice” when it comes to the application of the customs and tax rules (Accountant, October 2004).
Furthermore, e-commerce by nature is multi-jurisdictional, which means that a national taxing authority is required to consider its interfaces with other jurisdictions (Jane Frecknall Hughes and Keith Glaister, 2001).

Income generated by such activity may also be difficult to tax fairly. Governments rely on reporting and collection by sellers for the administration of sales taxes, including the European Value-Added Tax (VAT). For income taxes, most international tax mechanisms give priority to the source state. In e-commerce, technology can make it difficult or confusing to identify sources (OECD, 1998). Even when sellers and the source of e-commerce income can be ascertained, states are generally unable to enforce tax burdens extraterritorially.

In view of the innovative and original character of e-commerce the following issues are suggested to:

- The different policies that the European Union and the USA are adopting concerning e-commerce as they are the world’s most highly equipped regions for information technology.
- The development of e-commerce in Greece through a comparative analysis of two surveys concerning electronic commerce in Greece for the period 2001-2002 in order to examine how Greek enterprises responded to this challenge.

Data is collected by the Greek National Statistics Service based on annual survey on ICT (Information and Communication Technology) usage and e-commerce in enterprises. Data for the US was collected by the US Statistics Institutes, the US Census Bureau, the US Department of Commerce, the US Treasury and the Forrester Research.
CHAPTER 2: LITERATURE REVIEW

2.1 DEFINITIONS OF THE PERMANENT ESTABLISHMENT IN THE CONTEXT OF E-COMMERCE

A commonly held view is that the way an e-enterprise works does not fit with the tax regulations that apply to the more traditional model, which is heavily dependent on the idea of a physical presence, whereas e-commerce is not (Irion J.K., 2000). Consequently, there is a need to shift traditional thinking about tax systems and their link to the “real world”.

With e-commerce, it is no longer necessary for businesses to have a physical presence in a country in order to sell their products or services there. This phenomenon has raised the issue of whether the traditional concept of permanent establishment remains a valid concept or if a change is indeed necessary.

A distinction needs to be made between a computer (which could constitute a permanent establishment), and the data and software, which are used by that equipment. For instance, an Internet web site may be seen as a combination of software and electronic data, which is stored on and operated by a server (Peshcke Koed L., 18 May 1998).

THE OECD DEFINITION OF PERMANENT ESTABLISHMENT

The definition of permanent establishment provided by article 5.1 of the Organization for Economic Cooperation and Development (OECD). Model Convention contains three conditions:

1. the existence of a “place of business”, i.e. a facility such as premises or, in certain instances, machinery or equipment
2. this place of business must be “fixed”, i.e. it must be established at a distinct place with a certain degree of permanence
3. the carrying on of the business of the enterprise through this fixed place of business. This means usually that persons who, in one way or another, are dependent on the enterprise (personnel) conduct their duties wherever firm’s premises are located at.
THE US DEFINITION ON E-COMMERCE
In March 2000, the Committee on Fiscal Affairs (CFA), Working Party No 1, issued a revised draft commentary on article 5 addressing certain e-commerce issues. The Draft provides that since a web site does not involve any tangible property it cannot constitute a "place of business." It is important to note that the web site alone cannot perform these functions. It must work in tandem with the server to accomplish these tasks. Thus, the web site itself does not constitute a dependent agent for the enterprise, but by working along with a server it satisfies the conditions of article 5(5) and thus may constitute a permanent establishment in the state where the server and the web site are located. The server can function as the primary site where information is stored, if it is part of a network, or as a gateway for incoming and outgoing information. A server may perform as stand-alone equipment and not as part of a network. Therefore, to constitute a fixed place of business a server needs to be located at a certain place for a sufficient period of time so as to become fixed (in conformity with article 5 § 1) (Peshcke Koed L., 18 May 1998).

THE OECD's VIEW ON E-COMMERCE
The Organization for Economic Cooperation and Development (OECD), a group to which the industrialized countries are members and which develops economic policy information and studies, has been active in studying the impact of e-commerce on international taxation of income and consumption. OECD has led many tax coordination efforts, including its Model Income Tax Treaty that has been the pattern for most of the world's tax treaties, and it has also tried to make statistical comparisons among countries more meaningful by encouraging comparable practices in reporting economic information.

In 1998, finance ministers from the OECD countries met in Ottawa, Canada, to discuss tax rules appropriate to the mechanisms of electronic commerce. They concluded that: "the taxation framework for electronic commerce should be guided by the same taxation principles that guide governments in relation to conventional commerce" (OECD Directorate, 1998).

OECD has outlined several basic taxation principles, which should apply to electronic commerce (OECD, 8.10.1998).

1. Neutrality: taxation should seek to be neutral and equitable between forms of electronic commerce, and between conventional and electronic commerce as well as between conventional and electronic forms of commerce. Business decisions should be motivated by economic rather than tax considerations. Taxpayers in similar
situations carrying out similar transactions should be subject to similar levels of taxation.

2. Efficiency: compliance costs for taxpayers and administrative costs for the tax authorities should be minimized as far as possible.

3. Certainty and simplicity: the tax rules should be clear and simple to understand so that taxpayers can anticipate the tax consequences in advance of a transaction, including knowing when, where and how the tax is to be accounted.

4. Effectiveness and Fairness: taxation should produce the right amount of tax at the right time. The potential for tax evasion and avoidance should be minimized while keeping counter-acting measures proportionate to the risks involved.

5. Flexibility: the systems for the taxation should be flexible and dynamic to ensure that they keep pace with technological and commercial developments.

These broad taxation principles led to the following double recognition:

1) the VAT should be centered on the place of consumption rather than on the place of supply and

2) digital products should be classified as services (OECD, 1998).

In 1999, OECD proposed rules that would establish income tax authority on business profits from transactions where only a Web server, not actual company sales personnel or other physical contacts, are present in a country (OECD, 1999). Income tax authority would be limited to situations where the country where the Web server is located at, has an income tax treaty with the country where the seller is physically located (Interactive Services Ass'n Task Force, Jan. 20, 1997). However, even those limited proposals have not been adopted and other issues arise when either the Web server or the seller are located in a tax haven country (Jeffrey Owens, 2000).

Thus, the bilateral income tax treaty network that links most industrialized countries has provided a starting point for an agreement on neutral and equitable apportionment of tax revenues raised on the income from e-commerce, and has stimulated pressure on tax haven countries to release information on persons and activities within their territories (N.Y. TIMES, June 14, 2001).
Simon Woodside, Fiscal Affairs at OECD, expressed the same opinion in an interview to David Rooney for the OECD Observer Magazine (2001): “Everyone likes to argue about tax. And the tax treatment of e-commerce is no exception. Some of the controversy stems from such notions as the idea that e-commerce is somehow so special that governments shouldn't tax it at all. That's not an argument that I buy—there's no rational case for granting e-commerce more favorable tax treatment than conventional trade. That would only distort the market and if, as expected, e-commerce continues to grow, it could lead to an expanding hole in the revenue base”.

And he continues: “e-commerce gets more of the headlines, probably because it's recognized as such an important new feature of the global economy. It does beg fundamental questions about the way our taxation systems work—whether it's taxation of company profits or taxation of private consumption. The technology that makes e-commerce what it is puts more of a spotlight on the possible challenges to effective taxation—just how do you tax a cyber-business, or all those sales over the Net? E-commerce makes international trade in particular so much easier and to the debate about taxation moves up the international level, too. That's where the OECD fits in.

Most mainstream opinion accepts that e-commerce should properly fall in the taxation net. What we need to consider is how that works internationally, to provide the same level of certainty governments and businesses that we aim for today in relation to conventional commerce. We need to be clear about where taxation takes place and how—especially to avoid the risks of double taxation, or unintentional non-taxation”.

The Organization for Economic Cooperation and Development (OECD) contends that tax competition is harmful to the future of developed economies. It warns that although “globalization and new technologies have enabled mobile resources to shift rapidly into activities that promise the greatest return, shifting resources simply to take advantage of preferential tax treatment distorts the location of capital and services and unfairly erodes the tax bases of other countries” (U.S. Mission to the OECD Newsletter, July 2000).

The OECD further contends that tax competition places extra tax burdens on those businesses that are relatively immobile because of the fixed nature of their assets and human resources. The OECD’s position, however, disregards the benefits of tax competition. In the business world, competition leads to innovation, lower prices and improved service. Tax competition
serves a similar beneficial role. It forces greater fiscal responsibility and affords taxpayers the ability to enjoy more of what they earn. This in turn draws savings, investment and skilled labor into the economy (U.S. Mission to the OECD Newsletter, July 2000).

2.2 THE US POLICY ON E-COMMERCE

E-COMMERCE ISSUES

The U.S. Treasury is aware of the looming tax compliance problems. Already, in its 1996 report, the U.S. Treasury expressed its fears in the following terms:

“The major compliance issue posed by electronic commerce is the extent to which electronic money is analogous to cash and thus creates the potential for anonymous and untraceable transactions. Another significant category of issues involves identifying parties to communications and transactions utilizing these new technologies and verifying records when transactions are conducted electronically” (US Treasury, 1997).

The U.S. Treasury, in a major 1997 report on electronic commerce, entitled Selected Tax Policy Implications of Global Electronic Commerce, devotes substantial attention to the question of tax compliance in the era of Internet commerce. While the report says that the tools and techniques necessary to effectively deal with compliance in e-commerce must be developed, it also concludes that the U.S. Treasury or the Internal Revenue Service (IRS) alone cannot develop them.

As e-commerce has been gaining momentum, the national tax authorities and their "affiliated" trans/inter-national organizations are making it clear that regardless of the inherent difficulties it will be subjected to the same taxation principles as any other business activity (US Treasury, 1997).

However, in the US, the strong feeling that e-commerce is a new form of doing business which should be allowed to develop unhampered led to the 1998 US Internet Tax Freedom Act (ITFA), which introduced a three year moratorium on any kind of new tax on electronic transactions (Smiegowski N.N., 2000).

THE CLINTON ADMINISTRATION POLICY

The basic US policy on Internet commerce is the “Framework for Electronic Commerce” released in July 1997. The Clinton Administration did not express a direct view regarding
multilateral agreement to apportion tax in this Framework. The Clinton Administration did state, however, “any taxation of internet sales should follow these principles:

- It should neither distort nor hinder commerce. No tax system should discriminate among types of commerce, nor should it create incentives that will change the nature or location of transactions.
- The system should be simple and transparent. It should be capable of capturing the overwhelming majority of appropriate revenues, be easy to implement and minimize burdensome record keeping and costs for all parties.
- The system should be able to accommodate tax systems used by the United States and our partners today.

Wherever feasible, they vowed to look to existing taxation concepts and principles to achieve these goals” (IFAC, March 2000).

THOUGHTS ON TAXING INTERNET

At the same time, fiscal administrations seem to become increasingly aware and somewhat perplexed, of the difficulties related to taxing e-commerce. An excerpt from a speech entitled "Tax Administration in a Global Era" to the 34th General Assembly of the Inter-American Center of tax Administrators, released by Treasury Secretary Summers on July 10, 2000 highlights this attitude: “The Internet provides new ways for tax administrations such as the Internal Revenue Service (IRS), to improve the ease and transparency of tax collection. But new technology also raises certain problems. In a world where cyber-transactions are growing at a rapid pace, tax administrations face the challenge of adapting existing tax systems to an economy that increasingly ignores physical borders. In such a world, it will be easier for companies to avoid tax collectors by operating worldwide through web-sites based in jurisdictions that are unwilling to share taxpayer information”

On 2001, within the United States, a national effort is being made to redesign the existing patchwork of sales and use taxes in the various states to create a uniform system, the Streamlined Sales Tax (SST) that would be neutral in interstate commerce, would cover electronic commerce and would facilitate tax compliance and collections from sellers.
INTERNET TAX FREEDOM ACT

The Internet Tax Freedom Act is a federal law imposing a 3-year moratorium (from 1/10/98 through 21/10/2001) on state and local taxes on Internet access, unless the tax was generally imposed and actually enforced before October 1, 1998. The moratorium also prohibits state and local government from imposing multiple or discriminatory taxes on electronic commerce (Joint Venture: Silicon Valley Network, March 2000). Supporters of the moratorium emphasized the potential of e-commerce for productivity and growth and were concerned about the burdens that might be imposed in complying with a multiplicity of varying rules and rates.

In 1998, the World Trade Organization (WTO) agreed on a temporary moratorium barring customs duties on electronic transactions and the World Customs Organization began working on improved transparency (OECD, 1998). The objective sought by these efforts was to achieve uniformity and limit taxation burdens on e-commerce. The U.S. Congress examined e-commerce taxation issues—primarily in the context of United States interstate commerce—during 2001, as the Internet Tax Freedom Act (ITFA) was set to expire in October of that year. Divisions in Congress were substantially along party lines, with the Republican -controlled House passing an extension of the limited moratorium on new Internet taxation in mid-October, (House of Representatives (H.R.) 1552, 107th Cong., 1st Sess. 2001), while the Democratic led Senate, refused to act on the extension as such (U.S. NEWswire, Oct. 19, 2001). The leading Senate bill to extend the act contained extensive material on the SST, as well as the ITFA extension provisions (S. 1542, 107th Cong (1st Sess. 2001). With the ITFA lapsed, its significance economically and legally was very limited (Internet Tax Freedom Act, 2001).

Opposition to the extension of the ITFA was based on the following arguments:
(H.R.) changes the Internet Tax Freedom Act in three key ways:

- It would have changed the temporary “moratorium” on state and local taxation of Internet access services into a permanent prohibition on such taxes
- It would have repealed ITFA’s previous clause, which had allowed approximately 10 states and a small number of cities that had taxed Internet access service prior to October 1, 1998 to continue doing so
It would have expanded the definition of tax-exempt “Internet access” to include all telecommunications services “used to provide Internet access” (Mazerov M., 20.10.2003).

In an article entitled "The Internet tax dodge", Mr. H. Aaron (1999) summarized these arguments in this way: "If it turned out that removing its unfair tax advantage killed Internet commerce, then the conclusion would be inescapable that e-commerce grew only because of taxes and could not prevail in a fair fight”.

CALIFORNIA’s INTERNET TAX FREEDOM ACT
On the other hand there are some others who believe that e-commerce should remain a tax free zone, an opinion which they justify as follows: "Taxes imposed on Internet access or Online Computer Services by state and local governments could subject consumers, businesses and other users engaged in interstate and foreign commerce to multiple, confusing and burdensome taxation, could restrict the growth and continued technological maturation of the Internet itself and could call into question the continued viability of this dynamic medium. This could threaten Internet access for Californians at home, at work and at school and is counterproductive to established state policies, such as the promotion of telecommuting” (California's Internet Tax Freedom Act, 24.8.98).

ADVISORY COMMISSION ON E-COMMERCE
The Advisory Commission on Electronic Commerce presented a Report to Congress in April 2000 proposing to achieve a global solution through the following five-part approach:
1. Substantially reducing the overall burden on consumers due to state and local sales taxes by radically simplifying state and local tax systems and reducing the aggregate collection costs of all transactions, which will allow all sellers to pass on those cost savings to taxpayers
2. Creating a simple and equitable system for state and local sales taxes that would impose equal obligations and costs on all sellers, local or remote, regardless of sales channel or technology utilized
3. Addressing concerns regarding the digital divide and regressive character of state and local transaction taxes by eliminating the disparate tax treatment of main street and Internet sales, banning taxes on Internet access and reducing overall transaction tax rates
4. Eliminating the federal excise tax on communications services, simplifying state and local telecommunications taxes and eliminating multiple and discriminatory taxation of telecommunications services and property

5. Protecting the privacy of consumers by minimizing the disclosure of personal information for tax collection purposes (Advisory Commission on Electronic Commerce, April 2000).

The issue of taxing e-commerce was in the words of a “Tax Notes” article “the hottest topic in multistate taxation” (Sheppard Lee A., July 21, 1997).

**OPINIONS ON TAXING E-COMMERCE**

On one side, state governments and the National Governors Association noted the potential revenue losses from online transactions and called for immediate enforcement of sales taxes. On the other, Internet advocates argued that cyberspace was still fragile and its future uncertain; to tax in its beginning, they said, might seriously damage its growth (Wyden Ron, 1997).

As the Center for Community Economic Research at Berkeley rather colorfully put it, “state and local government finances are becoming a road kill on the information superhighway” (Newman Nathan, 1995).

Many federal, state and business leaders support the ban on Internet taxation. Congressman Christopher Cox of California, senators Ron Wyden and John McCain and Governor Jil Gilmore of Virginia all endorsed making the Internet a tax-free zone. Not surprisingly, business leaders Ted Waitt of Gateway, AT&T’s Michael Armstrong and John Sidgmore, vice-chairman of MCI WorldCom, also supported a moratorium on Internet taxation. The anti-tax position addresses three issues:

- regulation of Internet commerce by imposing state and local taxes would threaten the growth of e-commerce
- the existing tax system is too complex and burdensome
- the problem of dealing with the Quill decision and the issue of “nexus” or “physical presence” in “virtual” Internet commerce (Gordon-Murnane Laura, June 2000).

Some international government representatives have recommended imposing “bit taxes” on electronic transmissions. As suggested, a bit tax would be an international tax, on digital
information according to the size of the data transferred. Proposals for bit and byte taxes have met with little support by government officials for fear that such impositions would discourage the growth of the Internet (Cordell A.J., 1997).

Various suggestions have been made to address the perceived differences inherent in e-commerce transactions. Proposals to implement a bit tax, for example, on the volume of digital bits of information growing across global networks have been one suggestion. This would actually change the tax base, though transactions would still be integrated within company profits (Cordell A.J., 1997).

Many members of the U.S. Congress support the move toward uniform tax rules embodied in the Streamlined Sales Tax (SST) as a response to e-commerce tax issues within the United State, which are in many respects analogous to international e-commerce issues. Each U.S. state, just as each member state in the EU, has its own tax system and budget and most of them have some form of income and sales tax (The European Commission, 2000).

2.3 THE EU’s APPROACH OF E-COMMERCE
The policy of the EU with respect to Internet Commerce is outlined in the European Initiative in Electronic Commerce, released in April 1997. Like the US, the EU has not expressed a direct view in relation to multilateral agreement regarding tax apportionment. The Initiative does, indicate though, that “the territorial concepts which underlie direct taxation systems (‘residence’ and the ‘source’ of income)…. need to be examined in the light of commercial and technological developments. As with indirect taxation, the goal is threefold: to provide legal certainty, to avoid undue revenue loss and to ensure neutrality” (European Union, April 1997).

HISTORY
The “Bonn Declaration” underlines that the emergence of Global Information Networks is a highly positive development having the potential to affect every aspect of our society-from commerce to health care, from education to leisure, from the practice of government to the exercise of democracy. The ministers called therefore upon all European actors-businesses, consumers and governments- to work constructively together to fully realize the economic and social potential of Global Information Networks. They committed themselves to maximize opportunities for the creation of new jobs, greater economic integration, the
maintenance of social standards and social cohesion. They consider it essential to avoid a division between information “have’s” and “have nots.” The Ministers stressed that the legal frameworks should be applied on line as they are off line. In view of the speed with which new technologies are developing they will strive to frame regulations, which are technologically neutral. They agreed that any regulatory framework should be clear and predictable, pro-competitive, strike the right balance between the freedom of expression and the protection of private and public interests and ensure consumer protection. They also underlined that unnecessary regulation should be avoided.

European Union Industry Commissioner Mr. Bangemann, welcomed the declaration saying: “This declaration outlines the political guidance Europe needs in order to define its strategy and common answers to the questions raised by the dynamic growth of Electronic Commerce and the development of Global Information Networks. I am particularly satisfied by the fact that the ministerial declaration is very much in line with the European Commission’s Initiative on Electronic Commerce from April 1997.”

Germany’s economic affairs Minister Rextrodt, commended on the Bonn declaration by saying: “I am very satisfied with the discussions and results of the conference. Since I made the proposal for the Bonn conference in October 1996, the sensitivity and importance of the themes, which we have discussed the last two days, has become much clearer. The timing for this event could not have been better. Europe has shown itself willing to face the challenge of Global Information Networks and deal with the crucial issues related to cross-border nature of the new services.”

Mr. Wim Dik, chairman of KPN, said: “It is promising that governments acknowledge in such strong terms that this new medium requires a market-driven approach in which industry is primarily responsible for building consumer confidence and governments to create an environment in which confidence will flourish” (Information Society Web, press release of 8 July 1997).

**THE FIRST EUROPEAN COMMISSION PROPOSAL TO REGULATE INTERNET**

In 2000, the European Commission proposed rules for the EU that would compel online sellers to collect VAT on their sales of electronically delivered products and services to customers located in Europe—wherever the seller might be located. Products that are subject
to physical delivery are subject to VAT upon entry into any European state, under the common external tariff structure of the EU. The extension of tax jurisdiction to digitally delivered products was widely opposed, even within Europe (e-commerce L, 2001). It was intended to protect European sellers from unfair competition by the United States and other foreign sellers who do not have to collect such taxes. Although a United States seller would, in many cases, not have assets at risk for collection by the European tax agencies, many United States suppliers would hesitate to build up huge tax liabilities within Europe that might someday be subject to collection, perhaps after business expansion, merger, or change in tax rules. Although technology to monitor transactions, calculate tax liabilities and facilitate enforcement could be envisioned, it was not yet in place in 2000.

European Commissioner Frits Bolkenstein claimed in a speech in September 2000, "We have international agreement on the principle that for consumption taxes the rules should result in taxation in the jurisdiction where consumption takes place”.

COMMISSION PROPOSAL
Under the revised proposal, a seller could register in any EU member state, as before, but was to remit VAT at a rate applicable in the member country of destination (which varies from fifteen to twenty-five percent). Registered sellers would be given access to the VAT database and would be entitled to rely on the information thus received in setting the appropriate tax rate (Commission Proposal, IP/00/583 and MEMO/00/31, 2000).

DIRECTIVE 2002/38/EC
In the interests of the proper functioning of the Internal market, action was taken to ensure, in particular, that electronically supplied services, where effected for consideration and consumed by customers established in the Community, are taxed in the Community and are not taxed if consumed outside the Community. To this end, electronically supplied services (ESS) provided from third countries to persons established in the Community or from the Community to recipients established in third countries should be taxed at the place of the recipient of the services. To facilitate compliance with fiscal obligations by operators providing electronically supplied services, who are neither established nor required to be identified for tax purposes within the Community, one may opt for identification in a single Member State. This shall apply for a period of three years starting from 1 July 2003 (Council Directive 2002/38/EC of 7 May 2002).
The special scheme provided for in Article 26c of the Directive applies only for services provided to non-established or resident in the Community. It is thus clear that the non-established taxable person needs certain information about his customer (Council Regulation No 792, 2002).

On May 7 2002, the European Union (Council) adopted the Directive 2002/38/EC setting out the principles of the system to collect Value Added Tax on electronically supplied services (commerce transaction). While EU Member States agreed that no new or additional taxes should be imposed on electronic commerce, they found that existing taxes should be adapted and applied. In each Member State, a domestic value-added tax (VAT), which is a consumption tax, is payable on deliveries of goods and the provision of services. In this regard, the Council agreed that electronic commerce transactions that do not involve the delivery of physical goods are a provision of a service subject to VAT, no matter whether the services are supplied from inside or outside the EU. From July 1, 2003, US based companies providing these electronically supplied services (ESS) to EU-based final consumers have had to collect VAT. The Directive sets out an indicative list of the types of services covered, which includes digitally downloadable software, web site hosting, on-line music delivery, and distance teaching. US based providers of these services to EU based consumers will be able to choose from three options in order to comply with the new rules. They can establish in the EU (in effect become an EU company), register in each Member state where they make supplies of ESS (the standard business registration for non-established businesses) or use a Special Scheme set up by the Directive that allows non-EU based supplies to choose a single VAT authority with which to conduct their VAT affairs (NTE Report European Union, 2004).

In 2002, F. Bolkestein, the European Commissioner for Taxation issued the following statement: “I welcome the decision of the Council to adopt these rules on applying VAT to digital products. They will remove the serious competitive handicap which EU firms currently face in comparison with non-EU suppliers of digital services both when exporting to world markets and when selling to European consumers” (IP/02/673, 07.05.2002).

GOODS – US TO EU B2B

Customs duty and import VAT are due at the time goods first enter the EU, although some Member states operate payment deferral schemes. Import VAT is calculated on the value of the goods plus customs duty. The importer is responsible for handling the VAT accounting. In
the B2B market this is often the customer, which means the US based supplier does not need to register for VAT or collect tax on the sale.

GOODS –INTRA EU B2B
Once a good has been imported, VAT is also applied to its onward supply to customers elsewhere in the EU or in the country of import. For onward supply to business customers in other Member states the supplier does not need to charge VAT if the customer can provide a VAT number that is then attached to the invoice. The VAT registered customer accounts for the VAT at its local rate using the reverse charge procedure. These intra EU transactions between companies are called acquisitions. For supplies within a Member state the seller applies local VAT to the transaction –these sales are called domestic supplies.

GOODS –US TO EU B2C
The Internet has led to an increase in direct marketing from US based companies to EU consumers. The place of supply on these sales is the US. Nevertheless, as import VAT is chargeable, a good commercial practice in these circumstances is to remind the customer that VAT might be collected on delivery by the local authorities. Finally, consignments sent directly from outside the EU to consignees within it are exempt from duties and VAT if the total value is less than 22 euro.

GOODS –INTRA EU B2C
A US company operating through its subsidiary in the EU base out of the US would charge VAT on its sales of products to consumers in other EU countries unless its total value of sales to one of those Member states goes above a distance-selling threshold. These thresholds vary per member state. The US Company would need to register for VAT in each Member state where the threshold is breached. These thresholds only apply to goods sent from a VAT registered business in one EU country to a consumer in another (Whitehead M., 31.07.03).

OPINIONS ON THE SPECIFIC DIRECTIVE
On February 2004, the International Communications Round Table (ICRT) warmly welcomed the Commission’s proposals. It declared that together with the proposed Services Directive the Commission has provided the Parliament and the Council with measures that will substantially simplify and streamline the markets for cross-border services. The Services Directive will simplify life for suppliers to reach out across borders to seek new customers, whereas these VAT proposals simplify life for their customers. Given the fundamental
acceleration in the number of services now being offered on a cross-border basis, reflecting modern communications tools and notably, the Internet, the existing rules risk becoming swamped and a major impediment to the integration of Europe’s services sector, especially SMEs. The ICRT can endorse the proposals as they are, but would nonetheless like to encourage the legislator to be more ambitious with respect to tangible services and the treatment of immovable property.

For VAT purposes, there are well established channels for taxing these transactions—goods purchased from third countries are taxed at import, exported goods are zero-rated and intra-Community sales of goods are taxed under a special regime for distance sales, either in the Member State of the seller or the buyer (dependent largely on the volume of such trade carried out by the seller).

The interface between the Community’s indirect tax system and those of its trading partners should be neutral - in effect all supplies for consumption within the EU are subject to EU VAT while supplies to other jurisdictions are not.

The fact is that compliance for non-EU e-commerce operators should, in accordance with international agreements, be made as easy and simple as possible. To this end, the Commission is proposing that non-EU e-commerce operators should be required to register only in a single Member State and have the possibility of discharging all their obligations by dealing with a single tax administration.

When a supplier of services is based outside the EU, no VAT would be payable on services supplied to customers within the EU. Given that services and intangibles form an ever-increasing part of international trade, this should be rectified. Furthermore, the existing rules do not ensure that electronically delivered services can, in all cases, be exported free of charge and that a sufficient legal base exists for charging VAT on services supplied to EU private consumers by foreign operators.

**THE REVERSE CHARGE SYSTEM**

What is being proposed therefore is predicated on the continued use of the reverse charge system for business-to-business transactions linked to the imposition of a registration obligation on operators supplying to EU non-taxable persons.
Transactions between businesses will be taxed under the reverse charge procedures. For this purpose, suppliers will need to be able to distinguish between business customers (taxable persons) and final consumers (non-taxable persons).

**B2C**
For supplies to non-taxable persons in the Community, no change is proposed and therefore businesses will continue to charge VAT, in the Member State where the supplier is established, as provided for in Article 9(1) of the 6th Directive. For supplies to non-EU customers however, the proposal contains a clear legal base for making such electronic supplies exempt from VAT.

**B2B**
Non-EU suppliers selling to customers in the Community will now be required to apply taxes on the same basis as an EU operator when transacting business in the Community. This means that they must charge and account for VAT on sales to final consumers in the EU. The administrative obligations will however be as light and straightforward as possible for such suppliers. A single registration is envisaged and provision is made for a registration threshold to exclude very small non-Community operators or those making occasional supplies into the Community (Commission of the European Communities, 07.06.2000).

**SPECIAL SCHEME FOR ELECTRONICALLY SUPPLIED SERVICES**
The Special Scheme for electronically supplied services states that:

1. Member states shall permit a non-taxable person (final consumer) supplying electronic services to a non-taxable person who is established or has his permanent address or usually resides in a Member state to use a special scheme. The special scheme shall apply to all those supplies within the Community.
2. The non-established taxable person shall state to the Member state of identification when his activity as a taxable person starts, ceases or changes to the extent that he no longer qualifies for the special scheme. Such statement shall be made electronically (Council Directive 2002/38/EC of 7 May 2002).

While the EU recognizes that existing rules may not be compatible with e-commerce and changes may be required, it appears unlikely that preference would be given to a proposal incorporating a multilateral agreement to apportion tax as a means of resolving such issues.
The preferred policy of the EU appears to be to modify the existing bilateral system (IFAC, March 2000).

2.4 US CONCERNS ON EU VAT DIRECTIVE
A letter from the US Council for International Business to Commissioner Bolkenstein on July 30, 2002, spelled out some of the concerns expressed on behalf of business:

Proving a customer’s location is difficult and may result in greater business costs for businesses, meaning that services are not being treated equally to goods since they are standard-rated and in many jurisdictions the equivalent goods enjoy a reduction in the applicable rate. Rate discrimination results from the fact that non-EU operator’s tax burden will be greater than that of EU operators who can charge a lower rate of VAT to EU customers if they are tax registered in a low tax jurisdiction (e.g. Luxembourg).

Proving a customer’s location is difficult meaning that the most impartial way is to allow the customer to declare it on his own. Unfortunately, EU member states might not agree to such policy due to the likelihood that customers can evade the VAT altogether, merely by declaring that they are in a non-EU country.

Finally, another risk involves the increase in costs for foreign firms, meaning that non-EU providers will undoubtedly face administrative burdens due to the VAT. Giving the fact that the value of these costs is yet unknown makes the situation more hazardous. Businesses must plan their taxes in such a way that their compliance burdens are kept to a minimum. If the cost of being compliant under the special scheme outweighs the cost of registering normally in the European Union, businesses will probably want to opt for registering normally. This will allow them to benefit from the regular input tax recovery system that is disallowed under the special scheme. Special scheme operators will only be allowed to recover input taxes by means of a so-called 13th Directive refund, which may constitute a risk and raise compliance costs (Torstens F., 2002).

2.5 NEW PROPOSAL FOR B2B
On 11 March 2004, commissioner Bolkenstein presented the following proposal to the Council of Ministers included only business-to-business transactions. “The European Commission has presented a proposal to change the place of supply of services for VAT
purposes. As a result, the general rule will be altered in such a way that taxation shifts from the place where the supplier is located to the place where the customer has established his business or has a fixed establishment. Naturally, there would be exceptions to this general rule for certain services as to avoid imposing disproportionate administrative burdens upon traders (PriceWaterhouseCoopers, 18.03.2004).

The main and basic principles that characterize the proposal are the following:
(a). No new taxes, neither additional to the existing ones, but the existing are adapted and particularly the VAT
(b). For VAT purposes, the acquisition of goods and services with electronic means is considered as service and not as sale of goods and
(c). Only the services destined for consumption in the EU will be taxed inside the EU (tax imposition in the state that is destined for consumption).

The first two of the above principles are based on the Opinion of the Economic and Social Committee on the Communication of the European Commission on “e-commerce and indirect taxation” (98/C 407/49) while also the Directive adopts the principle of tax imposition in the place of consumption instead of the place of origin (Accountant, October 2004).

As EU attempts to put its new rules into practice, OECD and other international associations will continue their efforts for an internationally acceptable solution, which will not be an unnecessary burden to businesses and will guarantee a new source of income to taxing authorities (Torsten F., 2001).
CHAPTER 3: EU TAX HARMONIZATION

3.1 INTRODUCTION

E-commerce has made cross-border transactions more frequent and thus has attracted the attention of tax officials worldwide. One notable impact in the increase of international trade has been the coordination and remarkable convergence of the various tax systems in trading countries (Reuven S. Avi-Yonah, 2000). For decades, significant efforts to harmonize tax systems have been made within the EU, where sales taxation under VAT predominates and transnational commerce in all forms has been highly developed (Council Directive 67/227, 1967 and 77/388, 1977).

Corporate tax rate harmonization has long been a goal of the single integrated European market. It is an effort to achieve economic growth for all member states through establishing identical tax bases, rates and systems. It is hoped that a minimum corporate tax rate would remove the consideration of tax implications from business decisions and create a level playing field on which to compete for foreign investment. Without a minimum corporate tax rate, developed nations such as Germany and France fear that they will have to drastically reduce their tax rates in order to compete for foreign investment at the expense of funding their social programs. In the past few years, the debate over the detrimental effects of tax competition culminated in a call for global tax rate harmonization and the establishment of an EU minimum corporate tax rate (Spencer, July 1998). Dutch Finance Minister Onno Rudding expressed the belief that corporate tax rate harmonization, like a single currency, is a logical progression in the creation of a single integrated marketplace (Rudding O., March 21, 1992). Rudding feels that some degree of tax harmonization is necessary to avoid distortion of competition within the single market and problems with the economic and monetary union. As the goal of economic and political accord within the EU is coming to fruition, tensions remain high over whether to establish an EU minimum corporate tax rate.

Throughout the history of the European Union (Amsterdam Treaty, 1997), the domestic laws of member states have inhibited the progression toward complete economic harmonization. The goal of economic harmonization has eluded the EU due in part to the disparity among member states’ corporate tax rates. Pursuant to Article 90 of the European Community Treaty, member states may levy taxes directly upon their citizens or upon corporations and
other entities conducting business within their borders (B. Terra and P. Wattel, 1993). Generally, when one nation offers a substantially lower corporate tax rate than another, corporations will likely invest in the state with the lowest tax rates. This trend is not solely limited to the EU. Multinational corporations search the globe for the lowest tax rates in attempt to reduce costs and maximize profits (Meredith J. Coleman, 2000). Naturally, these taxation disparities were dramatically accentuated with the recent enlargement.

Essentially, tax harmonization is an attempt by the major economies of the world to eliminate competition for foreign investment and maintain their tax bases. The OECD’s position on the contrary, holds that tax competition should be encouraged in the EU and in the rest of the world in order to allow the market to decide suitable tax rates. Investors are the best judges of what a reasonable rate of taxation is for a given country. By looking at the benefits of doing business in a country, an investor can decide what he or she is willing to pay the government in taxes. For example, investors will be willing to pay higher taxes to a country that has highly developed infrastructures instead of moving to a country lacking basic facilities. Only when a country offers investors lower corporate tax rates than the market is willing to bear, would tax competition be destructive. However, developed countries need not do so to compete for foreign investment and tax revenue. There is real value in conducting business in developed nation and investors are willing to pay for it in the form of taxes on corporate profits.

3.2 ELECTRONIC INVOICING

All the aforementioned transactions will be facilitated by electronic invoicing. Electronic invoicing, which can cut invoicing costs significantly, is now developing rapidly, notably as a result of the growth of electronic commerce. But in some Member States, electronic invoicing was previously prohibited or had been accompanied by parallel transmission of paper invoices. In others it was permitted subject to varying conditions. Firms established in several Member states required therefore special authorization in certain countries to apply cross-border invoicing arrangements and had to use a technology specific to each Member state for the creation, transmission and storage of the electronic invoices. They also had to cope with recording different items of information for each country, storing information for a different period in each country and sometimes even making simultaneous electronic and paper transmissions of data (Council Directive 2001/115/EC).
3.3 INTERNATIONAL STANDARDS ORGANIZATION

The development of international standards is necessary in order that anyone, anywhere in the world can do business. Business collaboration standards are a viable path to improve business agility. Out of several initiatives that have left their marks over time, two stand out in terms of their importance for the business community and their respective technical merits. Electronic Data Interchange (EDI), which has its roots in the 1970’s, represents first generation business collaboration and RosettaNet, a vertical business collaboration standard for the high-tech industry, introduces the concept of XML-based dialogues.

The International Standards Organization (ISO) endorsement is a ringing validation of the value of Electronic business extensible markup language (ebXML). Until now, the technology available for most businesses to exchange data was Electronic Data Interchange (EDI), which made significant contributions to productivity and inventory control. Many companies, however, find EDI increasingly expensive and difficult to implement. The ebXML initiative, using the economies of scale presented by the Internet, breaks through these obstacles. It was created as a replacement for Electronic Data Interchange (EDI), which many analysts have said, declined because it was expensive and hard to construct.

EbXML provides companies with a standard method to exchange business messages, conduct trading relationships, communicate data in common terms and define and register business processes. It aims to make it easier for organizations to interface with others within and outside their industry, open up new markets with less effort than before and, at the same time, cut costs and simplifies process associated with traditional document exchange.

“ISO/TS 15000 underscores the importance of partnership between ISO and standards-developing organizations as OASIS to craft a common set of standards and reflects the international community’s recognition of the importance of ebXML in enabling electronic business,” said Alan Bryden, ISO Secretary-General. “We applaud the developers of ebXML within OASIS and the United Nations Center for Trade Facilitation and Electronic Business (UN/CEFACT) for their contributions to open trade data interchange and harmonization”.

“ISO designation makes the already widely adopted ebXML standards even more accessible to adopters – particularly those implementing business solutions for governments – who look to ISO for assurance of long term viability.” John Borras, Director Technology Policy, UK
Office of the e-Envoy, characterized the ISO approval as “a milestone for domestic and international electronic trade. Government agencies, users and trade organizations can specify ebXML compliance with even greater evidence.”

ISO/TS 15000 was approved by ISO technical committee ISO/TC 154, processes, data elements and documents in commerce, industry and administration (ISO, 30.03.2004).

In 2004, approximately 80% of companies were expected to realize the biggest savings in transitioning to fully automate electronic business collaboration. The simple fact is that the majority of all business transactions is currently paper-based and is performed manually. In tangible figures, savings would generally be in the range between 0.5-5% of gross revenue, depending on the industry segment. While companies have made many efforts to optimize internal operations in the light of a tough economy, streamlining business collaboration with partners still offers enormous potential for cost reduction.

Being suited mainly for big companies due to substantial investments required, EDI failed to achieve wide adoption in its 20 years of history. Unsurprisingly, only about 2% out of all businesses around the globe are using EDI on 2004. On the other hand, ebXML was created from the beginning, with a vision of being an affordable solution for all kinds of enterprises, including medium and small-sized enterprises. Hence, ebXML could indeed help some 25 million businesses worldwide, automate inter-enterprise business collaboration and at the same time open up new revenue potential for software vendors, systems integrators and other service providers.

As a new market is being formed, software vendors are generally keen on augmenting their solutions with proprietary elements. This is usually not an issue, since more often than not; public standards may not have emerged or are at an early stage in their formation process. Very often, standards emerge long after the first products have seen the light of day.

At this time ebXML-based business collaboration is mostly confined to pilot projects. The number of successfully completed pilot projects within large enterprises is still in the low two-digit range. No project is known so far to have resulted in failure.

On 2004, there are few environments that run ebXML implementations in operation. One of the few but growing numbers of successful deployments is “Steel 24-7”, the European Steel
Marketplace. The ebXML Message Service is used as the preferred transport protocol for communication with trading partners. Other sites, such as the US Government – Department of Defense, make use of the ebXML Registry and Repository implementation.

So ebXML is a reality today, although at a very early stage, somewhere between “innovators” and “early adopters”. Since there is a profound business case, there is no reason to doubt that ebXML will gain traction soon. It is expected ebXML integration layer solutions to penetrate the market first. Single-source comprehensive business collaboration solutions, implementing the integration layer, the business collaboration layer and tools, will become available by mid 2003 (ISO, 30.03.2004).

3.4 CROSS-BORDER ACCORDS
The Organization for Economic Cooperation and Development (OECD), the European Union and the US have all said that existing principles should be used to tax e-commerce. There is no desire, as yet, on the part of any government to try anything so radical. The key word for future policy according to an October 7, 1998 meeting of all 29 OECD member countries is neutrality. According to conference attendees, all transactions carried out through Internet should be treated as conventional ones. Goods brought in from outside the country are subject to tax on entry into a value–added tax (VAT) country if the vendor is not subject to the tax. Therefore, if digital products are goods, they would be subject to the same rules. However, because these products are delivered electronically there is no entry point, such as customs, at which to levy the taxes. By characterizing digital products as services, VAT countries can use an existing mechanism, the reverse-charge mechanism, to administer tax collection.

The OECD report takes the position that “consumption taxation of cross-border trade should result in taxation in the jurisdiction where the consumption takes place”. This follows the US model for sales taxes, which are imposed in the states where the sales are made or where the products or services are consumed. It seems to differ from the VAT model where both goods and services are usually taxed at the vendor’s location. Under the VAT model a relatively small number of services are taxed where they are consumed, but no agreement could be reached regarding the exchange of a single rate per state for an expanded duty to collect. All in all the conferences in Ottawa of OECD members agreed that governments should adopt consistent standards for cross-border taxation for e-commerce. The idea is to prevent double taxation and unintentional non-taxation. The report concludes that the idea is certainly not a
new one and may still be interesting to remind member states that they have lots of work to do on this matter before it is resolved (Cardinali R., 2001).

3.5 BARRIERS TO E-COMMERCE
The European Union currently has no significant barriers to electronic commerce. However, US businesses and the US Government continue to monitor potential problems related to data privacy regulation and taxation of electronic transactions (NTE Report European Union, 2004).

One problem cited is that US suppliers would be required to collect and remit the VAT at different rates in accordance with the consumer’s Member State of residence. By contrast, EU suppliers would only be obliged to collect and remit VAT at the rate of the single Member State in which that supplier is registered. Another concern is that non-EU companies could be forced to charge higher VAT rates to European customers than would European retailers.

The related issue of data privacy rights is also a source of friction. While the EU supports strict legal regulations on gathering consumer’s private data, the United States has advocated a self-regulated approach. Controversy emerged when the EU adopted a directive forbidding the commercial exchange of private information with countries that lack adequate privacy protections. The issue appeared resolved by the “Safe Harbor” agreement of 2000, whereby US companies that agree to abide by privacy principles can enter a safe harbor protecting them from the EU directive barring data transfers to countries that do not adequately protect citizens’ privacy. But US companies have been slow to participate in the Safe Harbor by self-certifying to the Department of Commerce (only 217 had signed on as of August 2002). Currently, only entities whose activities fall under the regulatory authority of the Federal Trade Commission or the Department of Transportation are eligible to participate in the Safe Harbor. Whether or how other sectors, particularly financial services will be considered in relation to Safe Harbor has not yet been determined (Ahearn R. J., January 27, 2003).
CHAPTER 4: COMPARING STATISTICS

The ultimate objective of the EU strategy is to close what is a perceived gap in terms of the development of the information economy between the EU and its major competitor (USA). Evidence of this gap is highlighted by differences across a number of key indicators representing the maturity of the information economy. The sales generated through electronic commerce are ten times higher for the USA than for the EU. This gap is evident according to Forrester Research by the fact that only 13% of the EU’s online population is actively engaged in electronic commerce compared to 40% in the USA. Consequently, the level of electronic commerce is a mere 0.9% of EU GDP compared to 2.7% for the USA, with the average spending per US user being almost twice that of the average EU user.

Overall, Europe is perceived to be some 9-18 months behind the US in terms of the development of the information economy with its spending on IT, Internet usage, software development and trade in ICTs. All these key indicators to the state of the information economy are estimated to be around at one-half to two-thirds of those of its major competitor. The European Commission believes that the EU has some three to four years to catch up with the US before the latter is able to achieve what could potentially be an unassailable competitive advantage (Turner Colin, 2001).

The above statement could be justified by just looking at the following table indicating the number of secure servers in the EU and the US. The gap is very big. In total, US’ web servers for the period from July 1999 till January 2002 are 330 while for EU is only 73.
Total e-commerce sales can be divided into business-to-business sales and business-to-consumer sales. OECD has estimated that 80 percent of total e-commerce transactions are business-to-business sales, while 20 percent are business-to-consumer sales. The business-to-business sales are an extension of electronic data exchange systems that have been in use for some time (OECD, 1999).

According to Forrester Research, the leading market research company regarding the information economy, it is estimated that business-to-business sales will be much higher than business-to-consumer (McQuivey James, Delhagen Kate, Levin Kip and Kadison LaTour Maria, November 1998).

The same would be valid for Europe too, according to Forrester Research. The development of B2B infrastructure is set to power Europe's online trade to €2.2 trillion by 2006. Rapid growth from 2003 should push slow-moving firms into the digital era.

In 2000, Forrester Research valued 2002 e-commerce at 2,2 trillion USD. More than 50% (1,4 trillion USD) of that share relates to sales in North America, compared to less than 20% in Europe (422 billion USD) and Asia-Pacific (287 billion USD). Given that 67% of European consumers should be online by 2006 (over 200 million regular users), this is not an insignificant amount of money, even when less than 10% of digital service sales are business-to-consumer (B2C) sales (Torsten F., 2001).
In March 2000, the US Census Bureau released its first figures to measure e-commerce separately from other retail figures. Online sales of about $5.3 billion for the fourth quarter of 1999 represented about 0.6% of overall retail sales. In August 2000, the Department of Commerce reported that US retail e-commerce sales for the second quarter of 2000 had increased 5.3%. E-commerce sales in the second quarter accounted for 0.68% of total retail sales (Department of commerce, August 31, 2000).

The Census Bureau of the Department of Commerce announced recently that the estimate of US retail e-commerce sales for the third quarter of 2004 was $17.6 billion, an increase of 4.7% from the second quarter of 2004. Total retail sales for the third quarter of 2004 were estimated at $916.5 billion, an increase of 1.4% from the second quarter of 2004. The third quarter 2004 e-commerce estimate increased 21.5% from the third quarter of 2003 while total retail sales increases 6.2% in the same period. E-commerce sales in the third quarter accounted for 1.9% of total sales (U.S. Census Bureau, November 19, 2004).

In the first quarter of 2004, US online sales totalled $33 billion, a 36% year-over-year increase. While rebounding travel sales propelled e-commerce that past quarter, Valentine's Day and media attention on the online jewellery market contributed to rising sales in that category as well. In the third quarter of 2004 US e-commerce sales totalled $32.8 billion, a 28% year-over-year increase. This seemingly strong growth came on the heels of a weak second quarter and barely matched sales figures from that year’s first quarter, a sign that online retail suffers from the same ills as offline retail, and that the holiday season may not be that merry or bright for many online retailers (Carrie A. Johnson with Sharyn Leaver, October 26, 2004).

By 2010, online sales will reach $331 billion. The growing population of online shopping households combined with retailer innovations and site improvements will drive e-commerce to account for 13% of total retail sales in 2010, up from 7% in 2004. Between 2004 and 2010, online sales will grow at a 15% compound annual growth rate (Carrie A. Johnson with Sharyn Leaver, Esther H. Yuen, August 2, 2004).
CHAPTER 5: METHODOLOGY

Having completed the effort to describe the development of e-commerce and the issues related to its taxation, the research will now turn its attention to the case of Greece, on the basis of the results of two surveys carried out by the Greek National Statistical Services (GNSS) for the period 2001 – 2002.

The objective of those surveys was to examine the response of Greek enterprises to the challenges brought forth by the emergence of e-commerce during that period, and the ways they incorporated Information and Communication Technology (ICT) in their every day operation in order to keep up with rules as well as competition from the European Union.

The analysis that will follow was carried out by us and is entirely based on the data that came out of those two questionnaires, and it seeks to reach conclusions capable to explain the evolution of e-commerce in Greece and the relative attitudes of Greek enterprises in specific sectors.

The aim of both questionnaires is to gather data for the enterprises sampled concerning electronic commerce for the years 2001 and 2002. The first questionnaire was used in a survey carried out during the period of June – September 2001 by the Greek National Statistics Services.

The target population was to cover enterprises with 10 or more employees. The number of enterprises was in total 10,090 which can be broken down as follows:

- small (from 10 - 49 persons): 9,249,
- medium (from 50 - 249 persons): 681 and
- large (above 250 persons): 160

The number of enterprises in the final sample was in total 2,019 from which:

- small: 1,178,
- medium: 681 and
- large 160

The survey is divided in five parts.

- Part I includes questions about the use of Information and Communication Technologies,
- Part II includes questions about the use of Internet,
- Part III includes questions about the electronic commerce via Internet,
• Part IV includes questions about the electronic commerce via EDI or other networks except Internet and finally
• Part V includes questions about the problems and barriers concerning use of electronic commerce

The second survey was carried out during the period of February – March 2002 by the Greek National Statistics Services. The target population included enterprises with 10 or more persons employed. The number of enterprises in final sample was in total 776, from which
• small: 377,
• medium: 258 and
• large 141

The survey is divided in six parts.
• Part I includes questions about the general information about ICT systems,
• Part II includes questions about the use of Internet,
• Part III questions about the includes e-commerce via Internet,
• Part IV includes questions about the e-commerce via EDI or networks other than Internet,
• Part V includes questions about the confidence building practices for Internet-commerce,
• Part VI questions about the includes Barriers on Internet sales and finally
• Part VII questions about the includes information concerning the employees of the enterprises involved

The two surveys had the same questions. It should be noted that Part V “Confidence building practices for Internet-commerce” was a new addition to the 2002 questionnaire. This addition had no significant effect neither in the comparison of the two surveys nor in the commentary on the results.
CHAPTER 6: RESEARCH ANALYSIS

6.1 SURVEYS 2001 - 2002

The questionnaires aim to analyze how Greek enterprises are coping with electronic commerce. Greek National Statistics Services (GNSS), in the first part of the questionnaire wants to get a general idea about the use of Information and Communication Technologies (ICT) and how each of the enterprises sampled makes use of these systems. Questions like “does your enterprise use pc's, workstations or terminals?”, “total number of employed persons using computers in their normal work routine”, or “does your company use/plan to use the following technologies like e-mail, intranet and extranet, LAN, wireless LAN?” or “does your enterprise have dedicated IT systems for managing orders or purchase?”, want to show the relation of the Greek enterprises with the emerging Information and Communication Technologies.

In the second part, called “Use of Internet”, GNSS wants to establish how familiar Greek enterprises are with Internet and whether they follow the latest trends in ICT.

The third part of the questionnaire “Electronic commerce via Internet” has two subsections. The first subsection is called “purchases via internet” and the second subsection “sales via internet”. “Purchases via Internet” GNSS wants to find out if Greek enterprises began to make, and to what extent, purchases via Internet and online payments. Another indicator is the percentage of the online purchases compared to total purchases. Here GNSS, seeks to find out which benefits related to purchases via Internet are more important to Greek enterprises.

In the second subsection, GNSS wants to know the same things regarding sales via Internet.

Furthermore, GNSS seeks to refine its understanding of e-sales through a system used by the Greek enterprises for receiving/sending online orders and whether is connected automatically with different systems.

In the fourth part of the questionnaire “Electronic commerce via EDI or other networks except internet”, GNSS sets out to find whether Greek enterprises are familiar with other networks such as EDI for online transactions and the type of the network used. Also, it seeks to estimate the percentage of total transactions (purchases and sales) via EDI or other network except Internet in relation to total turnover. In the fifth part, several issues about “Problems
and barriers related to electronic commerce” are raised, in order to find out which are the constraints for e-commerce.

It should be pointed out that the 2002 questionnaire had an additional part in the fifth part “Confidence building practices for Internet - commerce”, GNSS tries to find “if the enterprise use one of the following practices and informs about this on its website”:

- Trustmarks
- Alternative dispute resolution mechanisms (resolution via an impartial outsider)
- Customer service/ complaints mechanisms”

6.2 ANALYSIS 2001

Greek enterprises were not very computerized - 85% of them had a computer, 98% of large and 84% of small and medium enterprises. In addition, the usage rate of network technologies was also particularly low: only 22% of surveyed enterprises had intranets, 5% EDI and 51% access to the web at the end of 2000, although, the trend is increasing from 1999 and onwards. The most frequent access to Internet is via analogue modem 38%, followed by ISDN connection with 29%, xDSL with 1% and other broadband connection with 3%.

The low level of access to the Internet in Greek enterprises does not seem to be due to financial reasons. In fact, cost concerns came last in the ranking of perceived barriers. After security (27%), enterprises saw the main barriers to Internet use as infrastructure quality (25% for slow or unstable data communications), and a lack of qualified personnel (22%). Another restraining factor is the lost working time due to irrelevant surfing (19%) by the personnel.

Mirroring the relatively low penetration of ICT in enterprises, Greek enterprises were not particularly active in e-commerce. Only 5% of them had implemented e-purchasing, and 6% were selling on-line. The most known way of making e-commerce purchases from 1999 and onwards is via Internet (2%) while purchases via EDI is zero. Other obstacles are uncertainty in making payments (13%) and for contracts, terms of delivery and guarantees (12%), which explain why Greek enterprises prefer to order (5%) via Internet than make payments (1%), and electronic delivery (1%). Their preference for online orders derives from their perception of benefits from e-purchases speed of processing (4%) as well as simplification of tasks (4%).
When asked what barriers they faced to engage in e-commerce, Greek enterprises quite frequently cited a lack of customers and suppliers (19%) and the nature of goods and services that cannot be purchased by Internet. Maybe as a consequence of this, B2B marketplaces were particularly popular among those Greek enterprises that were engaging in e-commerce. They were used by more than half of those purchasing on-line and more than one-quarter of those selling on-line.

According to the survey, (16%) of large enterprises chose to use EDI, against only (5%) of SMEs. The possibility to integrate EDI into Internet technologies lowers financial barriers and may increase its use among SMEs.

6.2.1 METHOD OF INTERNET CONNECTION

Internet access using analogue modem was the most popular method of making an Internet connection, although still relied on slower analogue connections. It was the solution chosen by (38%) of enterprises that were surveyed, (42%) of large ones and 38% of SMEs. Well over one-quarter of enterprises (29%) use ISDN connection, but only (2%) had embraced broadband technology, almost equally split between xDSL and other broadband solutions. Large enterprises were the first to move in this direction, with (7%) using xDSL (against 1% among SMEs), and (16%) using other broadband connections (against 2% for SMEs). Mobile phone access to the Internet was not reported in either SMEs or large enterprises.

6.2.2 PERCEPTION OF BARRIERS TO USING INTERNET

The results of the survey supported the view that enterprises were mainly concerned about the security issues of a connection to the Internet, as opposed to being doubtful about the potential benefits of such a connection. Lack of security and notably the fear of viruses and hackers, was cited by 27% of enterprises as an important problem of having an Internet connection and much more frequently by large enterprises (48%) than by SMEs (27%). In addition, a quarter of the enterprises surveyed cited technical issues (slow or unstable data communication) as a barrier to Internet access. In contrast, a lack of perceived benefits was cited by only 17% of enterprises as a barrier to using the Internet, while lost working time (for example, irrelevant surfing by personnel) appeared as a bigger problem for larger enterprises (cited by 38% of them) than for SMEs (18%).
6.2.3 USE OF E-PURCHASING
Mirroring the relatively low penetration of ICT in enterprises, Greek enterprises were not particularly active in e-commerce. Only 5% of them had implemented e-purchasing. In addition, some 5% of enterprises had plans to introduce e-purchasing via Internet during 2001. Recourse to e-purchasing seemed strongly related to the size of the enterprise. Almost 8% of the large enterprises surveyed declared using e-commerce to make purchases, against only 5% of SMEs.

6.2.4 GROWTH OF THE INTERNET FOR PURCHASING
Internet has been a recent development in the procurement strategy of most enterprises. At the date of the survey (2001), most enterprises using e-purchasing via Internet for less than 2 years (2%) and only 1% for more than two years. The proportion of enterprises using the Internet for e-purchasing for more than two years at the date of the survey was relatively similar for SMEs and large enterprises. Among large enterprises 1% had started using Internet e-purchasing within the two years prior to the survey, compared to 1% among SMEs.

6.2.5 VALUE OF E-PURCHASING
In total, e-purchasing (including all networks, Internet or not) represented a very small share of total purchases made by enterprises: less than 5% of the enterprises made 1% or more of their total purchases, while just 3% of the enterprises made 10% or more of their purchases through e-purchasing. Only 1% of the enterprises made 25% or more of their purchases through e-purchasing. Finally, around 1% of the enterprises made 50% or more of their purchases through e-purchasing.

6.2.6 USE OF E-PURCHASING BY FUNCTION
E-commerce may be used at several different stages of a transaction, including ordering, payment and electronic delivery, the latter in the case of weightless merchandise such as software, documents or services. Note that, for this survey, sending or receiving orders via manually written e-mails was not considered as e-commerce. Ordering was by far the most common e-purchasing process used by enterprises. Some 5% of them declared having ordered goods or services via the Internet. Among e-purchasing processes, electronic payment may require specific efforts, including building a secure environment and establishing the trust of both parties as regards the security and confidentiality of the data exchanged. This may partly explain why electronic payment was generally much less frequent than ordering. Only 1% of the enterprises paid via Internet for the goods and services purchased. The security issues with
respect to this type of e-commerce may explain the broad gap between ordering and payment in the case of the Internet.

6.2.7 USE OF E-SALES
The survey shows that enterprises were generally less active in selling than in purchasing by electronic means. Indeed, only 6% of surveyed enterprises declared using e-commerce to make sales (using EDI and/or Internet). However, 5% of the enterprises had plans to start using Internet e-commerce as a channel for sales in 2001. As with e-purchasing, large enterprises were much more prone to engage in e-sales than smaller ones. Some 13% of large enterprises declared using e-commerce to make sales against only 6% of SMEs.

6.2.8 COMPARISON OF EDI AND THE INTERNET FOR E-SALES
A small proportion of enterprises had been selling via the Internet for more than two years (1%), but the proportion has been growing steadily over time, with 2% using the Internet for e-sales for the last one or two years, and 3% having embraced it during the year prior to the survey.

6.2.9 EXTENT OF E-SALES
E-commerce still represented a very small share of the total sales made by enterprises: only 5% of surveyed enterprises declared achieving more than 1% of their turnover on-line, and only 2% more than 10% of their turnover, although these proportions were higher among larger enterprises (6% and 3% respectively).

6.2.10 USE OF E-SALES BY FUNCTION
Using e-commerce for selling may range from the simple presentation of the company and its products over the Internet - an electronic version of brochures and catalogues - to more developed interfaces allowing the taking of orders and, if applicable, the delivery of products. In the survey, the following sales processes were studied: enterprise information, price information, taking orders, accepting payments and electronic delivery. Note that sending or receiving orders via manually written e-mails was not considered as e-commerce. Taking orders (5%) and giving information on products (5%) and services and prices (5%) were the three most frequent sales processes used by enterprises over the Internet. This underlines the information-providing role of the Internet, both in B2B and B2C relations. Security concerns may at least partly explain the relatively low percentage of enterprises accepting payments over the Internet. There were, on average, only 1% of the enterprises doing this, some 4
percentage points below the share of enterprises taking orders on the Internet. These security concerns were apparently shared by large enterprises and SMEs, as both recorded low - and similar - penetration rates for e-payment procedures (3% and 1%). Large enterprises were however much more active than SMEs for the other e-sales processes: for example 6% of large enterprises took orders over the Internet, while only 5% of SMEs did.

6.2.11 USE OF MARKETPLACES
Among surveyed enterprises, 3% declared using B2B marketplaces to make purchases and 2% to make sales. The share of enterprises using e-marketplaces represented approximately one half of the share of those active in e-commerce. When the results of the survey are analysed by size class breakdown, a difference between SMEs and large enterprises is apparent with regard to their use of B2B marketplaces. Indeed, SMEs present within B2B e-marketplaces were there more to buy (3%) than to sell (2%), while large enterprises selling and buying was at the same rate (4%).

6.2.12 PROBLEMS AND BARRIERS OF E-PURCHASING
Confirming the need for a trustworthy environment in which to conduct e-commerce, enterprises cited the uncertainties about the conditions under which transactions take place as the main problems when using e-purchasing or as a barrier to using it, not taking into account cases where goods and services cannot be purchased on-line. Uncertainties concerning contracts, terms of delivery and guarantees were said to be of high or some importance by 12% of enterprises, and uncertainty in making payments by 13% of the enterprises, insufficient stock of potential suppliers by 13%. Delivery costs and logistical problems were the least important barriers to e-commerce, cited respectively by only 10% and 9% of the enterprises. An analysis by enterprise size class shows some differences in perceptions. When engaging in e-purchasing, the main concerns of large enterprises were that goods and services are not suitable for e-commerce (28%), followed by the perceived lack of potential suppliers by (24%) and uncertainties concerning contracts, terms of delivery and guarantees by (16%), uncertainty in payments by (13%) more or less at the same level as the high cost for delivery. Goods and services that are not suitable for e-commerce (19%) is the main concern among SMEs, followed by uncertainty in payments and lack of suppliers by 13%. Uncertainty with contracts, terms of delivery and guarantee conditions were cited by 12%. Too high delivery costs (10%) and logistical problems (9%) are mentioned as the least important concerns.
6.2.13 PROBLEMS AND BARRIERS OF E-SALES
Goods and services not suitable for e-commerce (18%), lack of potential customers (14%), uncertainty in payments (12%) appear as the main concerns for enterprises regarding the e-sales of the enterprises surveyed. The high cost of developing and maintaining an e-commerce system (11%) was also an important barrier for selling online. Uncertainties concerning contracts, terms of delivery and guarantees were mentioned by 10% of enterprises, about the same proportion of enterprises that mentioned logistical problems. The most frequently cited issue for both large enterprises and SMEs was the nature of goods and services (respectively 23% and 18%) and the perceived lack of customers (respectively 18% and 14%). The cost of developing/maintaining systems was the next most important problem (18% for large enterprises, while SMEs again focused on security concerns 12%). The results of the survey indicate that large enterprises felt better prepared to face the uncertainties surrounding e-commerce transactions than SMEs.

6.2.14 BENEFITS OF E-PURCHASING
Enterprises considering or having embraced e-purchasing value the speed of processing (4%) and the simplification of tasks (4%) as the main benefits of this form of procurement, ahead of cost savings (3%). It must be noted that cost savings may also be achieved indirectly from the other benefits. No significant differences could be observed from one sector to another, suggesting that these benefits are not specific to one activity, but should rather be seen as intrinsic to e-commerce. In contrast, gains in relation to processing speed (4%) were seen as almost equally important to the simplification of tasks (3%) by SMEs, while the same is true of the attitude of large enterprises (6%) regarding both benefits.

6.2.15 BENEFITS OF E-SALES
As regards the benefits of e-sales, embracing this channel of distribution is seen as much as a decision to gain new markets, in the form of new customers (6%) or new territories (4%), as a reactive move in response to competitors' strategies with a view to avoid losing markets (2%). Improved processing speed was also cited by more than 4% as a benefit of e-sales. Access to new customers was the most frequently cited benefit of e-sales for SMEs as 6% mentioned extending their market reach as a reason for engaging in this type of e-commerce. But a considerable proportion of large enterprises and SMEs considered the move mainly as a defensive one, destined to avoid the loss of market shares. This was the second most cited reason by SMEs (10%) and the most cited reason for large enterprises (30%). Furthermore, cost savings were seen as the least important issue for SMEs, but among the top motivations
of large enterprises. Reaching more customers was cited as the most often reported benefit of e-sales in every sector covered by the pilot survey. Improved speed of processing was the next most often reported benefit.

For SMEs, the most important benefits in engaging in e-sales is the reach of new customers (6%), simplification of tasks (4%) as well as speed of processing and geographic expansion of the market. Cost reduction was the next important benefit cited by (3%), followed by the improvement of the quality of services (2%) and the protection of market share (2%). For large enterprises the most important benefit is cost reduction (10%), followed by the need to reach new customers (8%), the speed up of processing (8%), the simplification of tasks (8%), the improvement of the quality of services (6%), geographic expansion (5%) and last protection of market share (5%).

6.3 ANALYSIS 2002

For most indicators, Greek enterprises reported low values although Internet sales were noticeably quite well developed. Greek enterprises recorded low IT penetration with only 88% of the Greek enterprises using computers. This low figure is wholly accounted for by the weak equipment rate within small enterprises (87%), while medium-sized and large ones were almost all of them computerised (99%). However, the average speed at which Greek enterprises were connecting to the net was considerably low. Greece reported low take-up rates of broadband Internet access. DSL technologies attracted only 1% of enterprises, while other types of broadband connections were present in 3% of enterprises. The survey sheds light on a mixed e-commerce scene in Greece, with on the one hand, a low recourse to e-procurement, compensated, on the other hand, by a high rate of adoption of e-sales. Indeed, only 17% of the enterprises having an Internet connection (corresponding to 11% of all enterprises) reported having purchased goods or services on the Internet in 2002. In terms of e-sales, in contrast, 14% of the Greek enterprises using the Internet declared having sold though this channel. Unsurprisingly, the most cited barrier to e-commerce for enterprises selling via Internet in Greece was the lack of readiness of customers to use this distribution channel.
6.3.1 FROM EDI TO INTERNET E-COMMERCE
On average 11% of all enterprises made some purchases via the Internet and 9% some sales, both considerably higher than the proportion that used other networks for e-commerce, such as EDI.

6.3.2 DESTINATION OF INTERNET E-COMMERCE / INTERNET SALES AND CUSTOMERS TYPES
Enterprises in Greece generated Internet sales of 193mln EUR in 2004. A breakdown by type of customer shows that the majority of Internet sales by enterprises were to business customers (62%), and only 18% to retail consumers.

6.3.3 ICT PENETRATION
Practically all enterprises were equipped with computers at the beginning of 2002, as computers were present in 88% of enterprises in Greece. 43% of the employees using computers and only one quarter of them are connected to the Internet. As far as intranets (internal enterprise networks based on Internet standards) is concerned, only 20% of the enterprises used them, while 65% use e-mails and only 5% extranets.

6.3.4 INTERNET PENETRATION
By the end of 2001, just over three-fifths of the Greek enterprises reported using the Internet, with another 11% having started to use it early in 2002 or planning to introduce later in that year. Greece has a low rate of Internet penetration (64%), but showed signs of catching up with 11% of the enterprises, indicating that they had started to use the Internet early in 2002 or planned to introduce it by the end of the year.

Greece, reported relatively low rates of Internet connected enterprises with a web presence 52%. Among enterprises with a web presence by far the most common services provided were the marketing of products (97% of enterprises with a web presence) and facilitating access to catalogues and price lists (43%). Approximately 17% of the enterprises with an Internet connection used it at least once to make e-purchases during 2004.

6.3.5 E-SALES
The proportion of Internet connected enterprises having made e-sales in 2004 was less than those that had made e-purchases. Across all sectors the average was 14% of Internet connected enterprises. Most of these enterprises generated only a small proportion of their
total sales via the Internet, but less than a quarter generated at least 5% of their sales via this channel. The results of the 2002\(^2\) survey allow the destination of Internet sales to be analysed both in terms of the type of customer and their location. The majority of Internet sales were to business customers (62%). In similar manner sales to domestic customers dominated Internet sales (64%). This 2002 survey also studied the barriers to e-commerce (note that this was not just limited to Internet e-commerce). All enterprises were asked to indicate the importance of five specified potential barriers:

For Enterprises Not Selling Via Internet:
Customers or other enterprises not ready (47%), security problems with payments (43%), uncertainty concerning legal framework (41%), products not suitable (34%) and logistical problems (24%).

For Enterprises Selling Via Internet:
Customers or other enterprises not ready (81%), uncertainty concerning legal framework (75%), security problems with payments (73%), products not suitable (44%) and logistical problems (43%).

Among enterprises that had not sold via Internet the two barriers that were regarded, as being of importance were that products were perceived as not being suitable for on-line sale and that customers (or other enterprises) were not ready for e-commerce. Among the population of enterprises that had sold on-line, the second of these reasons was also important, namely that customers were not ready, but problems relating to security and the legal framework also figured high. In general, most enterprises said that logistical problems were the least important barriers.

6.3.6 USE OF SPECIALISED MARKET PLACES
One notable development in e-commerce has been the emergence of specialised B2B market places, aiming at facilitating transactions between enterprises. Approximately one in four enterprises that purchased via Internet in 2002\(^4\) had made purchases (25%) from such a market place. In most countries more than one in ten Internet sellers had sold through a presence on specialised B2B market places (12%).
CHAPTER 7: COMPARISON BETWEEN 2001 AND 2002 SURVEYS

7.1 ICT PENETRATION
ICT penetration and use within enterprises generally increased between the 2001 and 2002 e-commerce survey. However, it appears that e-commerce activity has diminished in Greece in the field of recourse to specialized B2B marketplaces 2001: 52% while on 2002: 25%. Also the proportion of enterprises using intranets has decreased from 22% on 2001 to 20% on 2002. The proportion of enterprises using computers has increased from the beginning of 2001 86% to 89% since the beginning of 2002. Similarly, the use of Internet has also generally increased between both surveys from 52% (2001) to 66% (2002).

7.2 E-COMMERCE
Greece reported a marked increase in the proportion of enterprises purchasing via Internet 2001: (11%) and on 2002: (17%). However, specialized B2B marketplaces seemed to have failed to keep their customer base as they attracted a decreasing proportion of Internet buyers (from 36% in 2001 to 13% in 2002). In contrast with e-procurement, enterprises appeared increasingly interested in developing Internet as a sales channel (from 9% in 2001 to: 12% in 2002).

7.3 ENTERPRISE SIZE AND E-COMMERCE
PC equipment has made its way into practically the greater part of all Greek enterprises, small or large. Equipment rate reached on average 88%. The size of enterprises seemed to have influence on their equipment rate. Medium- sized and large enterprises were all-using PCs, while smaller ones reported lower equipment rates.

The proportion of enterprises using computers on the beginning of 2002 is 87% for Small, 99% for Medium and 99% for Large. **Average: 88%**

The proportion of employees using computers is for SME 37%, 35% for Small, 45% for Medium, and 54% for Large. Average: 43%. The proportion of employees using Internet connected computers is 20% for SME, 19% for Small, 25% for Medium, and 27% for Large. **Average: 23%**
7.4 INTERNET PENETRATION

The results of the survey reveal that Greek enterprises are rapidly adopting Internet technologies. Some 64% of the enterprises had an Internet connection. Small-sized enterprises reported somewhat lower connection rates (63%). Intranets were present in only 20% of the surveyed enterprises. A breakdown by size-class shows, logically enough, that they were far more common in large enterprises (66%) than in smaller ones (18%), indicating a greater need for structured internal communication tools as the number of persons employed in an organization grows. The results of the survey reveal extremely varied results as regards the type of Internet access. ISDN was the most frequently used technology for enterprises accessing the Internet (56%), and was particularly favored by medium-sized enterprises (65%), followed by small-sized enterprises (56%) and (57%) the large ones. Nevertheless, the low speed connection modem is a close second, preferred by 55% of small enterprises, 47% medium-sized enterprises and 37% of large enterprises. The bandwidth generally increased with the enterprise size, with large enterprises showing a greater likelihood of using broadband access technologies such as xDSL (4%) and other fixed connections (>2Mbps) (17%) than medium-sized enterprises (2% and 6% respectively) and small enterprises (1% and 2% respectively).

Among enterprises using the Internet as a customer, the most popular Internet application used was to monitor their market far more than smaller ones (at a rate of 91% of Internet connected large enterprises against 77% for SMEs). Interestingly, small and medium enterprises were more active users of e-banking and other types of financial services (60% of connected enterprises) than large ones (56%). A quarter of large enterprises preferred receiving products digitally, while, the proportion for small and medium-sized enterprises was 15% and 19% respectively. The proportion for obtaining after sales services was almost equal for large and medium-sized enterprises (25% and 24% respectively), while, for small ones it was 14%.

Approximately half of enterprises having an Internet connection also chose to have a presence on the web through a web site or homepage. As expected, large Internet connected enterprises were more prone to have a web presence (74%) than smaller ones (68% of medium and 51% of small-sized enterprises).
Most enterprises with a web presence used it as a marketing tool (97% to market products and 43% to show catalogues and prices) rather than as a complement to their after-sales service (11%), or to deliver digital products (7%). In general, size effects as regards these Internet services were relatively limited. In other words, the proportion of enterprises that used their presence on the Internet to market their products or provide access to catalogues and price lists was fairly similar across the board, although slightly greater among larger enterprises. Delivering digital products or providing mobile Internet services were the least frequent services offered by enterprises with a web presence.

7.5 PURCHASES
Less than a fifth of Internet connected enterprises in Greece (17%) used e-commerce in 2001 to purchase at least some of the products they needed for their activity (e-procurement). Recourse to e-procurement generally increased with enterprise size, from 16% of connected enterprises among small ones, 20% among medium-sized ones up to 27% of large enterprises. In order to have a clearer idea of the importance of e-procurement within enterprises, it is important to look at the share of Internet purchases in relation to total purchases, in order to take account of cases where e-procurement was negligible in volume terms. An important outcome from the survey is that the share of enterprises that had made at least 1% of their total purchases via the Internet was greater in SMEs than in large enterprises, and, in most cases, it was higher among small enterprises. The same was true with higher thresholds: 19% of small enterprises, 10% of medium enterprises and only 3% of large enterprises made more than 10% of their total purchases via the Internet. The same conclusion is true for those that made more than 50% of their total purchases via Internet, where the proportion is 3% for small enterprises, 4% for medium enterprises, while, there is no report for large enterprises. In other words, among enterprises that had taken the step to make at least some Internet purchases, the most intensive users were smaller enterprises.

7.6 SALES
According to the results of the survey, enterprises were less active in Internet selling than in Internet purchasing. Indeed, only 14% of enterprises using the Internet declared having received electronic orders (note that manually typed e-mails are not considered as electronic orders), a little bit smaller proportion of enterprises had purchased via Internet. Larger enterprises recorded a somewhat higher proportion of e-sales (17%) than SMEs (14%). In the case of specialized B2B Internet market places, however, the proportion of e-sellers remained...
less than half of that of e-purchasers. As with e-procurement, the survey shows that e-commerce sales represented proportionally a greater share of the total sales of small Internet selling enterprises than larger ones. For example, among enterprises that had made some sales via Internet, SMEs were more likely to have made at least 1% of their total sales this way (67%), than were large enterprises (64%). However, among enterprises that had made some sales via Internet, those that had achieved more than half of their sales via Internet were more likely to be small than large or medium-sized enterprises. Most sales made on the Internet were transactions between enterprises (B2B), regardless of the size of the selling enterprise. However, small enterprises sold proportionally more to final consumers than large enterprises in foreign markets. Most sales made via the Internet were destined to domestic customers (national sales). In contrast, large enterprises in Greece were almost exclusively dependent on their domestic market for Internet sales, achieving 97% of their sales nationally, while only 19% of Internet sales by small enterprises were to the domestic market. Surprisingly, medium-sized enterprises (21%) were generally more prone to have implemented online payment systems followed by small (18%) and large enterprises (14%).
CHAPTER 8: CONCLUSIONS

8.1 GENERAL
It is clear that a fundamental restructuring of current tax laws is needed to deal with the increasingly integrated economy of e-commerce. Perhaps the biggest practical hurdle to taxation is whether e-commerce transactions, flying around the Internet through multiple jurisdictions at the speed of light, are susceptible to taxation when both the location of seller and purchaser are unknown and the medium of payment could very well be untraceable.

The breath-taking explosion of e-commerce and Internet-related technologies has created jobs, enhanced productivity, enabled new forms of speech and promoted the sharing of creative expression among geographically distant individuals. But there is a dark side to the Internet associated with the difficulties in regulating this new forum. Internet technologies enhance the mobility of financial capital, making it easier to avoid taxes. E-commerce companies may be able to take advantage of traditional tax laws to manipulate the location of their income-producing activities so that these activities get taxed in low or nil taxing jurisdictions, leading to a potential increase in harmful tax competition as countries compete for highly mobile income. Finally, the nature of the Internet may frustrate attempts by national tax authorities to track and tax e-commerce transactions.

In response, the European Commission issued the Directive 2002/38/EC, in order to create an integrated regulatory framework for European businesses. Although US business raised objections at the time, there is no indication that the Directive harmed or hindered the development of e-commerce.

An effective regulatory framework would involve a goal-oriented, technology-flexible approach that, first, identifies the values and interests that require protection and second, attempts to mould the architecture of the Internet to ensure that these values and interests can be protected. A possible approach by governments could involve the development of a secure extranet to share taxpayer information among tax authorities, the promotion of some form of identification technology that reveals the physical jurisdiction where taxpayers reside and an international online clearinghouse to facilitate the tax collection process.
8.2 THE CASE OF GREECE

In this context of constant adaptations and readjustments Greece must keep pace with the various dominant trends. The results of the analysis of the two surveys carried out in the fields of ICT, Internet, Marketplaces, Purchases, Sales and Barriers will be described in detail below.

More precisely, in the ICT sector Greek enterprises were not particularly active in e-commerce due to the relatively low penetration of ICT in enterprises. The low level of access to the Internet in Greek enterprises is due to lack of security, to low infrastructure quality, to unstable data communication and to lack of qualified personnel. However, ICT penetration and use within enterprises generally did increase between 2001 and 2002. On the contrary, the proportion of enterprises using intranets decreased for the said period. The proportion of enterprises using computers as well as that of those using Internet also increased from 2001 to 2002. Today, PC equipment has made its way into practically all Greek enterprises, small or large. The size of enterprises seems to influence also their equipment rate. Medium- sized and large enterprises were virtually all using PCs, while smaller ones reported somewhat lower equipment rates.

Concerning Internet, the results of the survey reveal that Greek enterprises are rapidly adopting Internet technologies. A high percentage of enterprises have an Internet connection. Small-sized enterprises reported lower connection rates. Intranets were present in a low percentage of the surveyed enterprises. In large enterprises, intranets were far more common than in smaller ones, indicating a greater need for structured internal communication tools as the number of persons employed in an organization grows. The results of the survey reveal a more complex picture as regards the type of Internet access. ISDN was the most frequently used technology for enterprises accessing the Internet while the analog modem connection was the second choice. The bandwidth generally increased with the enterprise size, with large enterprises showing a greater likelihood of using broadband access technologies such as xDSL and other fixed connections (>2Mbps).

Among enterprises using the Internet as customers, large and medium sized ones, far more than smaller ones, used it to monitor their market. Interestingly enough, small and medium enterprises were more active users of e-banking and other types of financial services than large ones. In contrast, a quarter of large enterprises preferred receiving products digitally.
while the proportion for small and medium-sized enterprises was smaller. Large Internet connected enterprises were more likely to have a web presence than smaller ones.

Most enterprises with a web presence used it as a marketing tool rather than as a complement to their after-sales service or to deliver digital products. In general, size effects as regards these Internet services were relatively limited. In other words, the proportion of enterprises that used their presence on the Internet to market their products or provide access to catalogues and price lists was fairly similar across the board, although slightly greater among larger enterprises. Delivering digital products or providing mobile Internet services were the least frequent services offered by enterprises with a web presence.

Regarding marketplaces, the share of enterprises using e-marketplaces decreased noticeably. It appears that e-commerce activity has diminished in Greece in the field of specialized B2B marketplaces from 2001 to 2002. Specialized B2B marketplaces seemed to have failed to keep their customer base as they attracted a decreasing proportion of Internet buyers. In the case of specialized B2B Internet marketplaces, however, the proportion of e-sellers remained less than half of that of e-purchasers.

Speaking about purchases, e-purchasing seems strongly related to the size of the enterprise. E-commerce is used more frequently by large enterprises to make purchases than by SMEs. Internet has been a recent development in the procurement strategy of most enterprises. Most enterprises are using e-purchasing via Internet for less than 2 years. The proportion of enterprises purchasing via Internet increased during the time that the survey was carried out.

Only a small percentage of Internet connected enterprises in Greece used e-commerce to purchase at least some of the products they needed for their activity. This kind of activity generally increased with enterprise size. The increase is bigger from small to medium than from medium to large-sized enterprises. An important outcome of those surveys is that among enterprises that had taken the step to make at least some Internet purchases, the most intensive users were smaller enterprises.

E-commerce may be used at several different stages of a transaction, including ordering, payment and electronic delivery. Most enterprises are using ordering more often than payments. Security issues with respect to this type of e-commerce may explain the broad gap between ordering and payment in the case of the Internet.
As for sales, enterprises were less active in selling than in purchasing by electronic means. A small proportion of enterprises had been selling via the Internet for more than two years but this proportion has been growing steadily over the last two years. A separation by type of customer shows that the majority of Internet sales by enterprises were to business customers rather than to retail consumers.

A small percentage of enterprises using the Internet stated that they had received electronic orders, while their proportion was a bit smaller than that of purchases via Internet. Larger enterprises declared a rather higher proportion of e-sales than SMEs. Thus, among enterprises that had made sales via Internet, those that had achieved more than half of their sales via Internet were more likely to be small rather than large or medium-sized enterprises. Most sales made on the Internet were transactions between enterprises (B2B) regardless of the size of the enterprise. However, small enterprises sold proportionally more to final consumers than large enterprises to foreign markets. Most sales made via the Internet were destined to domestic customers (national sales). It is worth noting that large enterprises in Greece were almost exclusively dependent on their domestic market for Internet sales, while Internet sales by small enterprises to the domestic market were very small. Surprisingly, medium-sized enterprises were generally more likely to have implemented online payment systems followed by small and large enterprises.

Finally, among enterprises that had not sold via Internet the two barriers considered important were on the one hand products that were perceived as not being suitable for on-line sale and on the other hand customers that were not ready for e-commerce. Among enterprises that had sold on-line, problems relating to security and the legal framework also figured high. The least important barrier was said to be logistical problems.
APPENDIX 1
### Part X: General information on enterprises

**X1.** Name: ___________________________________________________________

**X2.** ΑΦΜ

**X3.** Address _______________________________________________________________________________  
Address Number P.O. Town

**X4.** Main activity (description). ___________________________________________________________________________

**X5.** Number of employed persons during 2001 ___________

**X6.**

**X7.** Total value of products and services (excluding VAT). on 2001 (in thousand drachmas).

**X8.** Total turn over (excluding VAT). on 2001 (in thousand drachmas).

### Part A: Use of Information and Communication Technologies (ICT).

**A1.** Does your enterprise use pcs, workstations or terminals?  
Yes ☐ No ☐  Go to F1

**A2.** Percentage of the total number of employees using computer at their work at least once a week  

<table>
<thead>
<tr>
<th>a). Computers (connected or not to Internet).</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>b). Computers connected to Internet</td>
<td>%</td>
</tr>
</tbody>
</table>

**A3.** Does your enterprise use/plan to use the following technologies?  
(Multiple answers are acceptable).  

<table>
<thead>
<tr>
<th>Use today 2001</th>
<th>Plan to use 2002</th>
<th>Do not use/non response</th>
</tr>
</thead>
<tbody>
<tr>
<td>a). E-mail</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>b). Intranet</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>c). Extranet</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

### Part B: Use of Internet (enterprises that use ICT).

**B1.** Does your company use/plan to use the internet?  
Use today 2001 ☐ Plan to use 2002 ☐ Do not use/non response ☐  Go to D1

**B2.** Type of external connection to Internet on 2001?  
(Multiple answers are acceptable).

<table>
<thead>
<tr>
<th>Type</th>
<th>2001</th>
<th>2002</th>
<th>Do not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>a). Mobile phone</td>
<td>☐</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b). Analogue modem (dial up)</td>
<td>☐</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c). ISDN</td>
<td>☐</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d). xDSL (ADSL, SDSL etc.)</td>
<td>☐</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e). Other broadband connection&lt; 2 MBps</td>
<td>☐</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f). other connection &gt;= 2MBps (e.g. frame relay/ Other broadband connection)</td>
<td>☐</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**B21.** Subscription Costs for 2001 to Internet service providers (in drachmas).  

**B22.** Telecommunication charges for Internet connection (in drachmas).

**B23.** Costs for obtaining equipment for 2001 that is used for accessing Internet (in drachmas).

**B3.** For what reasons does your enterprise use Internet?  
(User of internet services).  
(Multiple answers are acceptable).
### E-Commerce and International Taxation and the Case of Greece

#### Part C: E-commerce via Internet (enterprises with Internet access).

#### Use of electronic commerce for purchases

<table>
<thead>
<tr>
<th>C1. Does your enterprise purchased products/services via Internet on 2001?</th>
<th>Yes □</th>
<th>No □</th>
<th>Do not know □</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2. What percentage of the total purchases (excluding VAT). represent purchases via Internet on 2001?</td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C3. Has your enterprise made on-line payments for some products/services purchased via Internet on 2001?</td>
<td>Yes □</td>
<td>No □</td>
<td>Do not know □</td>
</tr>
<tr>
<td>C4. Has your enterprise purchased products through specialized marketplaces B2B (Business-to-Business). via Internet on 2001?</td>
<td>Yes □</td>
<td>No □</td>
<td>Do not know □</td>
</tr>
<tr>
<td>C5. How important do you consider the expected benefits from purchases via Internet (Multiple answers are acceptable).</td>
<td>Very important □</td>
<td>Important □</td>
<td>Not important □</td>
</tr>
<tr>
<td>a). Reduce business costs</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>b). Reduce prices</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>c). Increase of the access / knowing better with the suppliers</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>d). Reduction of the catalogues and pricelists</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>e). Speed up of the businesses processes</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

#### Sales via Internet

<table>
<thead>
<tr>
<th>C6. Has your enterprise received orders via Internet? (excluding manually typed e-mails).</th>
<th>Before 2001</th>
<th>From 2001 and onwards</th>
<th>No □</th>
<th>Do not know □</th>
</tr>
</thead>
<tbody>
<tr>
<td>C7. What percentage of the total turnover (excluding VAT). represent sales via Internet on 2001?</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C9. Breakdown of internet sales on 2001 by destination (in monetary terms).</td>
<td>Greece □ □ □ □ %</td>
<td>Other EU countries □ □ □ □ %</td>
<td>Rest of the world □ □ □ □ %</td>
<td>Do not know □</td>
</tr>
<tr>
<td>C10. Have your enterprise received on-line payments for sales via Internet on 2001?</td>
<td>Yes □</td>
<td>No □</td>
<td>Do not know □</td>
<td></td>
</tr>
</tbody>
</table>
C11. Does your enterprise address to other marketplaces for sales via Internet? Yes □ No □ Do not know □

C12. Does your enterprise make sales through specialized business-to-business Internet market places? Yes □ No □ Do not know □

C13. Did your system in 2001, in order to receive – accept on-line orders, was automatically connected with one of the following systems? Yes □ No □ Do not know □
   a). Suppliers system □ □ □ □
   b). Internal system for re-ordering replacement supplies □ □ □ □
   c). Customers’ business systems □ □ □ □
   d). Invoicing and payment systems □ □ □ □
   e). System for managing production of service operations □ □ □ □
   f). Logistics systems (electronic delivery is accepted). □ □ □ □
   g). Marketing operations □ □ □ □

C14. How important do you consider the expecting benefits for sales via Internet? (Multiple answers are acceptable). Very important □ Important □ Not important □ Do not know □
   a). Improvement of enterprise image □ □ □ □
   b). Cost reduction □ □ □ □
   c). Work acceleration □ □ □ □
   d). Improvement of services’ quality □ □ □ □
   e). reaching new customers □ □ □ □
   f). New products/services promotion □ □ □ □
   g). Increase the competitive level □ □ □ □
   h). Geographical expansion of the market □ □ □ □

Part D: Electronic commerce via EDI or other network except Internet. (Enterprises that make use ICT).

D1. Has your enterprise used EDI or other networks except Internet in 2001? Yes □ No □ Do not know □
   a). for purchases □ □ □ □
   b). for sales □ □ □ □

D2. Which technology has your enterprise used in 2001? EDI □ Minitel □ Other □ Do not know □

D3. What percentage of total purchases represent the purchases via EDI or other network except Internet for 2001? □ □ □ □ % Do not know □

D4. What percentage of total turnover represents sales via EDI or other network except Internet for 2001? □ □ □ □ % Do not know □

PART E: Problems and barriers to e-commerce

E1. How important do you consider the following barriers to on-line purchases? (Multiple answers are acceptable). Very important □ Important □ Not important □ Do not know □
   a). Products/services unsuitable for selling through Internet □ □ □ □
   b). Customers or other enterprises are not ready to use sales via Internet □ □ □ □
   c). Security problems concerning payments □ □ □ □
   d). Uncertainty concerning the legal framework for Internet sales (e.g. contracts, terms of delivery and guarantees). □ □ □ □
Part F: Other information

F1. Responsible person: ______________________ Tel.: ________ Signature: __________

F2. Researcher: ___________________________ Tel.: __________ Signature: __________

F3. Auditor: _______________________________ Tel.: __________ Signature: __________

Remarks:
APPENDIX 2
GREEK NATIONAL STATISTICS SERVICE

ELECTRONIC COMMERCE SURVEY 2003

<table>
<thead>
<tr>
<th>Part X: General enterprise's data</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1. Name: ________________________</td>
</tr>
<tr>
<td>X2.</td>
</tr>
<tr>
<td>X3. Address ________________________</td>
</tr>
<tr>
<td>Tel: ___________________________</td>
</tr>
<tr>
<td>Fax: ___________________________</td>
</tr>
<tr>
<td>X5. Number of employed persons during 2002 (average).</td>
</tr>
<tr>
<td>X6.</td>
</tr>
<tr>
<td>X7. Total purchases of goods and services, in value terms, (excluding VAT). on 2002 (in EURO).</td>
</tr>
<tr>
<td>X8. Total turn over (excluding VAT). on 2002 (in EURO).</td>
</tr>
</tbody>
</table>

Part A: General information about Information and Communication Technology (ICT). Systems

<table>
<thead>
<tr>
<th>A1. Does your enterprise use computers?</th>
<th>Yes ☐ No ☐ Go to G1</th>
</tr>
</thead>
<tbody>
<tr>
<td>A2. Total number of employed persons using computers in their normal work routine (at least once a week).:</td>
<td></td>
</tr>
<tr>
<td>a). All computers  %</td>
<td></td>
</tr>
<tr>
<td>b). Computers connected to Word Wide Web (Internet).  %</td>
<td></td>
</tr>
<tr>
<td>A3. Does your enterprise have employed persons who regularly work part of their time (half a day per week or more), away from your premises and who use electronic networks to communicate with the enterprise’s IT systems?</td>
<td>Yes ☐ No ☐</td>
</tr>
<tr>
<td>A4. Does your enterprise use the following information and communication technologies?</td>
<td>Yes ☐ No ☐ (Use now time of the survey).</td>
</tr>
<tr>
<td>a). Intranet</td>
<td></td>
</tr>
<tr>
<td>b). LAN</td>
<td></td>
</tr>
<tr>
<td>c). wireless LAN</td>
<td></td>
</tr>
<tr>
<td>d). Extranet</td>
<td></td>
</tr>
<tr>
<td>A5. Do you have dedicated IT systems for managing orders or purchases?</td>
<td>Yes ☐ No ☐ Go to B1</td>
</tr>
<tr>
<td>A6. Do your IT systems for managing orders or purchases link automatically with any of the following IT systems? (Multiple answers are acceptable).</td>
<td>Yes ☐ No</td>
</tr>
<tr>
<td>a). Internal system for re-ordering replacement supplies</td>
<td></td>
</tr>
<tr>
<td>b). Invoicing and payment systems</td>
<td></td>
</tr>
<tr>
<td>c). Your system for managing production of service operations</td>
<td></td>
</tr>
<tr>
<td>e). Your marketing operations</td>
<td></td>
</tr>
<tr>
<td>f). Your suppliers’ business systems</td>
<td></td>
</tr>
<tr>
<td>g). Your customers’ business systems</td>
<td></td>
</tr>
</tbody>
</table>

Part B: Use of Internet (asking enterprises with ICT).
<table>
<thead>
<tr>
<th><strong>B1.</strong></th>
<th><strong>Does your enterprise use or plan to use Internet?</strong></th>
<th><strong>Use on 2002</strong></th>
<th><strong>Do not use now but plan to use in 2003</strong></th>
<th><strong>Do not know / Do not plan to use in 2003</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>☐</td>
<td>☐ → Go to D1</td>
<td>☐ → Go to D1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>B2.</strong></th>
<th><strong>Type of external connection to the Internet on January 2003</strong> (Multiple answers are acceptable).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a). Wireless connection (satellite, mobile phone).</td>
</tr>
<tr>
<td></td>
<td>b). Analogue modem (dial-up access over normal telephone line).</td>
</tr>
<tr>
<td></td>
<td>c). ISDN connection</td>
</tr>
<tr>
<td></td>
<td>d). Broadband</td>
</tr>
<tr>
<td></td>
<td>e). xDSL</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Do not know</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>B3.</strong></th>
<th><strong>For what purposes does your enterprise use the Internet (as consumer of Internet services)?</strong> (Multiple answers are acceptable).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a). Information search</td>
</tr>
<tr>
<td></td>
<td>b). Market monitoring (e.g. prices).</td>
</tr>
<tr>
<td></td>
<td>c). Receiving digital products</td>
</tr>
<tr>
<td></td>
<td>d). Obtaining after sales services</td>
</tr>
<tr>
<td></td>
<td>e). Banking and financial services</td>
</tr>
<tr>
<td></td>
<td>f). Training and education</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>B4.</strong></th>
<th><strong>Does the enterprise use the Internet for interaction with public authorities?</strong> (Multiple answers are acceptable).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a). For obtaining information</td>
</tr>
<tr>
<td></td>
<td>b). For obtaining forms</td>
</tr>
<tr>
<td></td>
<td>c). For returning filled in forms</td>
</tr>
<tr>
<td></td>
<td>d). For full electronic case handling</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>B5.</strong></th>
<th><strong>Does the enterprise have a Web site or homepage?</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes ☐</td>
</tr>
<tr>
<td></td>
<td>No ☐ → go to B7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>B6.</strong></th>
<th><strong>Facilities of the website of your enterprises (your enterprise as provider of Internet services)</strong> (Multiple answers are acceptable).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a). Marketing the enterprise's products</td>
</tr>
<tr>
<td></td>
<td>b). Facilitating access to product catalogues and price lists</td>
</tr>
<tr>
<td></td>
<td>c). Customized page for repeat clients</td>
</tr>
<tr>
<td></td>
<td>d). Delivering digital products</td>
</tr>
<tr>
<td></td>
<td>e). Providing after sales support</td>
</tr>
<tr>
<td></td>
<td>f). Providing mobile Internet services</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>B7.</strong></th>
<th><strong>Which of the following security facilities does your enterprise use?</strong> (Multiple answers are accepted).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a). Secure servers</td>
</tr>
<tr>
<td></td>
<td>b). Firewalls</td>
</tr>
<tr>
<td></td>
<td>c). Encryption for confidentiality</td>
</tr>
<tr>
<td></td>
<td>d). Off-site data backup</td>
</tr>
<tr>
<td></td>
<td>e). Authentication mechanism</td>
</tr>
<tr>
<td></td>
<td>e1). of which electronic digital signature (as receiver).</td>
</tr>
<tr>
<td></td>
<td>e2). of which other authentication mechanism (e.g. PIN code).</td>
</tr>
<tr>
<td></td>
<td>f). Virus checking or protection software</td>
</tr>
<tr>
<td></td>
<td>g). Subscription to a security service (e.g. virus protection or intrusion alert).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>B8.</strong></th>
<th><strong>Has the enterprise updated any of its security facilities (e.g. virus protection software). in the last 3 months?</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes ☐</td>
</tr>
<tr>
<td></td>
<td>No ☐</td>
</tr>
</tbody>
</table>
Which of these security problems has the enterprise encountered in the last 12 months? (Multiple answers are acceptable).

- Computer virus attack resulting in loss of information or working time
- Unauthorized access to enterprise computer systems or data
- Blackmail or threats to the enterprise data or software

Subscription Costs for 2002 to Internet service providers (in euro).

Telecommunication charges for Internet connection (in euro).

Costs for obtaining equipment for 2002 that is used for accessing Internet (in euro).

Part C: E-commerce via Internet (asking enterprises with Internet access).

Purchases via Internet

<table>
<thead>
<tr>
<th>C.1</th>
<th>Has the enterprise purchased products/services via the Internet during 2002? At least 1% of total purchases</th>
<th>Yes □</th>
<th>No □</th>
<th>Do not know □ → Go to C5</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.2</td>
<td>What amount did the Internet purchases (in monetary terms, excluding VAT) represent in 2002?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C.3</td>
<td>Number of enterprises purchasing via Internet by %-categories (optional). Has the enterprise paid on-line for any products/services purchased on the Internet in 2002?</td>
<td>Yes □</td>
<td>No □</td>
<td></td>
</tr>
<tr>
<td>C.4</td>
<td>Has the enterprise purchased products via specialized B2B Internet market places in 2002?</td>
<td>Yes □</td>
<td>No □</td>
<td></td>
</tr>
</tbody>
</table>

Sales via Internet

<table>
<thead>
<tr>
<th>C.5</th>
<th>Has the enterprise received orders via the Internet in 2002 (excluding manually typed e-mails)? At least 1% of the turnover</th>
<th>Yes □</th>
<th>No □</th>
<th>I don't know □ → Go to D1</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.6</td>
<td>What amount (in monetary terms, excluding VAT) did revenues from Internet orders represent in 2002?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C.8</td>
<td>Breakdown of Internet sales 2002 by destination (in monetary terms).</td>
<td>Own country %</td>
<td>Other EU countries %</td>
<td>Rest of the world %</td>
</tr>
<tr>
<td>C.9</td>
<td>Has the enterprise received on-line payments for Internet sales in 2002?</td>
<td>Yes □</td>
<td>No □</td>
<td></td>
</tr>
<tr>
<td>C.10</td>
<td>Has the enterprise sold products to other enterprises via a presence on specialized B2B Internet market places in 2002?</td>
<td>Yes □</td>
<td>No □</td>
<td></td>
</tr>
<tr>
<td>C.11</td>
<td>Motivations for Internet sales</td>
<td>Very important □</td>
<td>Important □</td>
<td>Not important □</td>
</tr>
<tr>
<td></td>
<td>a). Company image considerations</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td>b). To reduce business costs</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td>c). To speed up business processes</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td>d). To improve quality of services</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td>e). To reach new customers</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td>f). To launch new products / services</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td>g). To keep pace with competitors</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td></td>
<td>h). To expand the market geographically</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>
### Part D: E-commerce via EDI or networks other than Internet (asking enterprises with ICT).

<table>
<thead>
<tr>
<th>D1.</th>
<th>Did the enterprises use EDI or networks other than Internet in 2002?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>α). for purchases (for at least 1% of total purchases).</td>
<td>[ ]</td>
<td>[ ]</td>
<td></td>
</tr>
<tr>
<td>β). for sales (for at least 1% of total sales).</td>
<td>[ ]</td>
<td>[ ]</td>
<td></td>
</tr>
</tbody>
</table>

α). for purchases (for at least 1% of total purchases).

β). for sales (for at least 1% of total sales).

<table>
<thead>
<tr>
<th>D2.</th>
<th>Which technology did you use in 2002? (multiple answers are acceptable).</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDI</td>
<td>Minitel</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D3.</th>
<th>How much (in monetary terms, VAT excluded). did the purchases via EDI or networks other than Internet represent in 2002?</th>
</tr>
</thead>
<tbody>
<tr>
<td>% (estimation)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D4.</th>
<th>What turnover (in monetary terms, VAT excluded). did the sales via EDI or networks other than Internet represent in 2002?</th>
</tr>
</thead>
<tbody>
<tr>
<td>% (estimation)</td>
<td></td>
</tr>
</tbody>
</table>

### Part E: Confidence building practices for e-commerce

<table>
<thead>
<tr>
<th>E1.</th>
<th>Does your enterprise use one of the following practices and informs about this on its website? (Multiple answers are acceptable).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>α). Trustmarks</td>
<td>[ ]</td>
</tr>
<tr>
<td>β). Alternative dispute resolution mechanisms (resolution via an impartial outsider).</td>
<td>[ ]</td>
</tr>
<tr>
<td>c). Customer service/ complaints mechanisms</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

### Part F: Barriers on Internet sales (optional question).

<table>
<thead>
<tr>
<th>F1. Problems and barriers related to Internet sales Enterprises selling via Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprises selling via Internet</td>
</tr>
<tr>
<td>Very important</td>
</tr>
<tr>
<td>α). Products / services of enterprise not suitable for sales by the Internet</td>
</tr>
<tr>
<td>β). Customers or other enterprises not ready to use sales via Internet</td>
</tr>
<tr>
<td>c). Security problems concerning payments</td>
</tr>
<tr>
<td>d). Uncertainty concerning legal framework for Internet sales (e.g. contracts, terms of delivery and guarantees).</td>
</tr>
<tr>
<td>e). Logistical problems</td>
</tr>
<tr>
<td>f). Other (please specify).:</td>
</tr>
</tbody>
</table>

### Part G: Other information

<table>
<thead>
<tr>
<th>G1.</th>
<th>Responsible person: ____________________________ Telephone: ________ Signature: ____________</th>
</tr>
</thead>
<tbody>
<tr>
<td>G2.</td>
<td>Researcher: Telephone: ________ Signature: ____________</td>
</tr>
<tr>
<td>G3.</td>
<td>Auditor: Telephone: ________ Signature: ____________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>G4.</th>
<th>If the enterprise has e-mail, the electronic address is:</th>
</tr>
</thead>
<tbody>
<tr>
<td>G5.</td>
<td>Time consumed by the enterprise to fill this questionnaire: ___________________</td>
</tr>
</tbody>
</table>

Remarks:
APPENDIX 3
ICT PENETRATION

<table>
<thead>
<tr>
<th>Category</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialized B2B marketplaces</td>
<td>52%</td>
<td>25%</td>
</tr>
<tr>
<td>Enterprises using intranets</td>
<td>22%</td>
<td>20%</td>
</tr>
<tr>
<td>Proportion of enterprises using computers</td>
<td>86%</td>
<td>89%</td>
</tr>
<tr>
<td>Use of Internet</td>
<td>52%</td>
<td>66%</td>
</tr>
</tbody>
</table>
E-COMMERCE

- Proportion of enterprises purchasing via Internet:
  - 2001: 11%
  - 2002: 17%

- Proportion of Internet buyers:
  - 2001: 36%
  - 2002: 13%

- E-procurement:
  - 2001: 9%
  - 2002: 12%
ENTERPRISE SIZE AND E-COMMERCE - Enterprises using computers

- Small enterprises using computers: 87%
- Medium enterprises using computers: 99%
- Large enterprises using computers: 99%

Year: 2002
ENTERPRISE SIZE AND E-COMMERCE-Employees using computers

- Small: 35%
- Medium: 45%
- Large: 54%

Year: 2002
ENTERPRISE SIZE AND E-COMMERCE-Employees using Internet connected computers

- Small: 19%
- Medium: 25%
- Large: 27%

Year: 2002
Set-up costs were too high: 16%
Internet access charges were too high: 14%
Lacking qualification of personnel / specific know how: 22%
Lack of perceived benefits for the company: 17%
Lost working time / irrelevant surfing: 19%
Data communications too slow or unstable: 25%
Lack of security (viruses, hackers): 27%
INTERNET SALES

Business (B2B sales): 62%
Consumers (B2C sales): 18%
Do not know / no answer: 20%
E-SALES VIA INTERNET

- Product information: 6%
- Price information: 5%
- Taking orders: 5%
- Payment: 1%
- Electronic delivery: 1%
DEFINITIONS

**ADSL (Asymmetric Digital Subscriber Line)**: One of the DSL techniques


**B2C (Business-to-Customer)**: Transactions conducted between business and private consumer over IP based networks and over other computer-mediated networks.

**Broadband**: A service or connection allowing a considerable amount of information to be conveyed, such as television pictures. Generally defined at a bandwidth greater than 2Mbps.

**Other networks except Internet**: EDI, Minitel or interactive telephone systems

**Digital goods/services**: Goods/services that can be ordered and delivered directly to a computer over the Internet, e.g. music, videos, games, computer software, online newspapers, consulting services, etc.

**Electronic commerce (e-commerce)**: Transactions conducted over Internet Protocol-based networks and over other computer-mediated networks. The goods/services are ordered over those networks, but the payment and the ultimate delivery of the good or service may be conducted on or off-line. Orders received via telephone, facsimile and non-interactive e-mails are not counted as electronic commerce.

**EDI (Electronic Data Interchange)**: Data interchange in structured form (EDIFACT) between businesses.

**E-mail**: Electronic transmission of messages, including text and attachments, from one computer to another located within or outside of the organization. This includes electronic mail by Internet or other computer networks.

**Internet**: Relates to Internet Protocol based networks: www, Extranet over the Internet, EDI over the Internet, Internet-enabled mobile phones.

**Intranet**: An internal company communications network using Internet protocol allowing communications within an organization.

**Extranet**: A secure extension of an Intranet that allows external users to access some parts of an organization's Intranet

**ISDN (Integrated Services Digital Network)**
Mobile Internet Services: Internet services available via a wireless terminal (Mobile phone, Personal Digital Assistant, PC device or custom terminal), and using Wireless Application Protocol (WAP), or General Packet Radio Service (GPRS). WAP is a protocol that makes it possible to adapt Internet formats to the characteristics of GSM handsets. GPRS is a packet-switched technology that makes it possible to send/receive blocks of data from/to a mobile phone.

Modem: Device modulating outgoing digital signals from a computer/other digital device to analogue signals for a conventional copper twisted pair telephone line and demodulates the incoming analogue signal and converts it to a digital signal for the digital device

On-line payment: An on-line payment is an integrated ordering-payment transaction.

Specialized Internet marketplaces: Web site where several enterprises are represented, which market a specific type of goods/services or aim at limited groups of customers.

Trustmarks: A sign board in a website that indicates that the organization conforms to best-practices aiming to gain the confidence of the consumer.

xDSL: Digital Subscriber Line. DSL technologies are designed to increase bandwidth available over standard copper telephone wires. Includes IDSL, HDSL, SDSL, ADSL, RDSL, VDSL, DSL-Lite.

Web site: Location on the World Wide Web identified by a Web address. Collection of Web files on a particular subject that includes a beginning file called a home page. Information is encoded with specific languages (Hypertext mark-up language (HTML), XML, Java) readable with a Web browser, like Netscape's Navigator or Microsoft's Internet Explorer.
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